S/M No. : C924T0S002

Service Manual

Microwave Oven

Model: KOC-924T0S

KOC-924T5S

KOC-924T0S01

KOC-924T5S01

DAEWOO ELECTRONICS CO., LTD.

http : //svc.dwe.co.kr May. 2002

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(a) Do not operate or allow the oven to be operated with the door open.

(b) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs if necessary: (1) Interlock operation, (2) Proper door closing, (3) Seal and sealing surfaces (arcing, wear, and other damage), (4) Damage to or loosening of hinges and latches (5) Evidence of dropping or abuse.

(c) Before turning on power to the microwave oven for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.

(d) Any defective or misadjusted components in the interlock, monitor, door seal and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.

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1. SAFETY AND PRECAUTIONS

1. FOR SAFE OPERATION

Damage that allows the microwave energy (that cooks or heats the food) to escape will result in poor cooking and may cause serious bodily injury to the operator.

IF ANY OF THE FOLLOWING CONDITIONS EXIST, OPERATOR MUST NOT USE THE APPLIANCE.

(Only a trained service personnel should make repairs.)

(1) A broken door hinge.
(2) A broken door viewing screen.
(3) A broken front panel, oven cavity.
(4) A loosened door lock.
(5) A broken door lock.

The door gasket plate and oven cavity surface should be kept clean.

No grease, soil or spatter should be allowed to build up on these surfaces or inside the oven.

DO NOT ATTEMPT TO OPERATE THIS APPLIANCE WITH THE DOOR OPEN.

The microwave oven has concealed switches to make sure the power is turned off when the door is opened.

Do not attempt to defeat them.

DO NOT ATTEMPT TO SERVICE THIS APPLIANCE UNTIL YOU HAVE READ THIS SERVICE MANUAL.

2. FOR SAFE SERVICE PROCEDURES.

1. If the oven is operative prior to servicing, a microwave emission check should be performed prior to servicing the oven.
2. If any certified oven unit is found to servicing, a microwave emission check should be performed prior to servicing the oven.
   (1) inform the manufacturer, importer or assembler,
   (2) repair the unit at no cost to the owner,
   (3) attempt to ascertain the cause of the excessive leakage,
   (4) tell the owner of the unit not to use the unit until the oven has been brought into compliance.
3. If the oven operates with the door open, the service person should tell the user not to operate the oven and contact the manufacturer immediately.

IMPORTANT

The wire in this mains lead coloured in accordance with the following code.

Green-and-yellow	: Earth
Blue	: Neutral
Brown	: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter ‘E’, earth symbol or coloured green-and-yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter ‘N’ or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter ‘L’ or coloured red.

NOTE : This oven is designed for counter-top use only.

2. SPECIFICATIONS

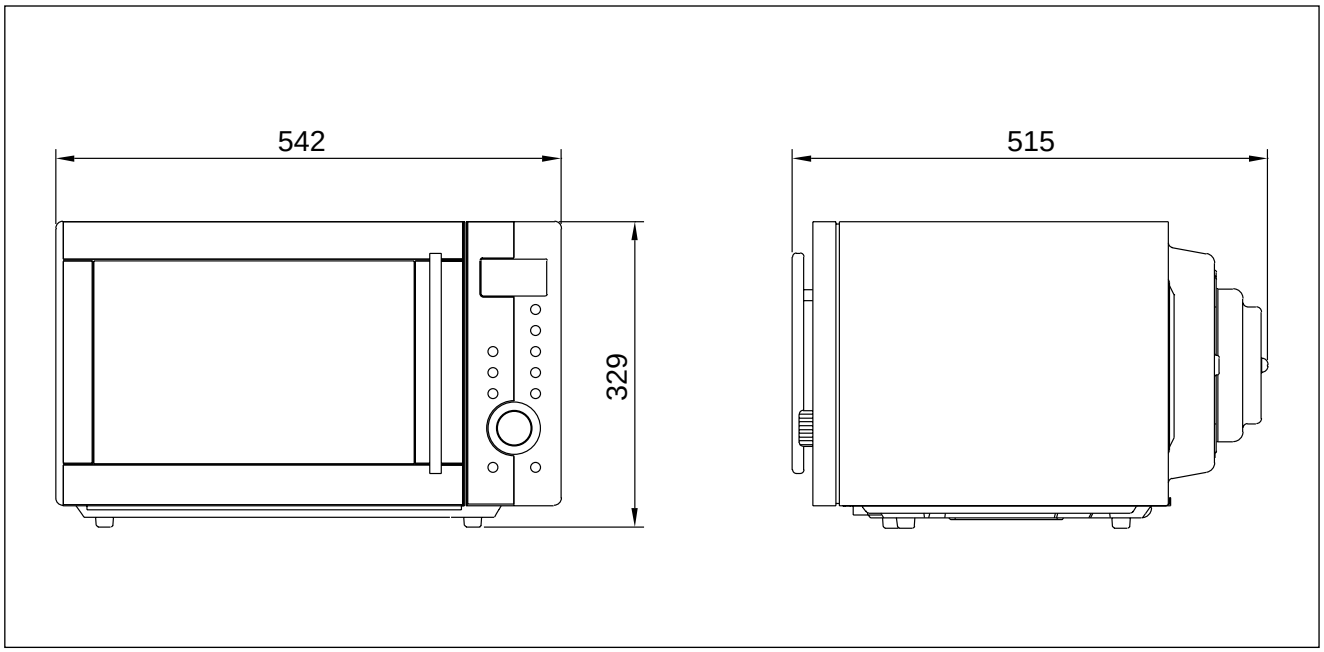
MODEL		KOC-924T0S/KOC-924T0S01
POWER SUPPLY		230V~50HZ, SINGLE PHASE WITH EARTHING
POWER CONSUMPTION	MICROWAVE	1500W
	GRILL	1150W
	CONVECTION	2550W
	COMBINATION	3000W
MICROWAVE ENERGY OUTPUT		1000W(IEC705)
MICROWAVE FREQUENCY		2450MHz
OUTSIDE DIMENSIONS (W X H X D)		542X329X515mm (21.3X13.0X20.3 in.)
CAVITY DIMENSIONS (W X H X D)		350X230X355mm (13.8X9.1X14.0 in.)
NET WEIGHT		APPROX. 20kg (44.1 lbs.)
TIMER		60 minutes
FUNCTION SELECTIONS		MICROWAVE/ GRILL/ CONVECTION/ COMBINATION/(BBQ)
POWER SELECTIONS		10 LEVELS
CAVITY VOLUME		1.0 Cu. Ft

MODEL		KOC-924T5S/KOC-924T5S01
POWER SUPPLY		230V~50HZ, SINGLE PHASE WITH EARTHING
POWER CONSUMPTION	MICROWAVE	1500W
	GRILL	1150W
	CONVECTION	1450W
	COMBINATION	1500W
MICROWAVE ENERGY OUTPUT		1000W(IEC705)
MICROWAVE FREQUENCY		2450MHz
OUTSIDE DIMENSIONS (W X H X D)		542X329X515mm (21.3X13.0X20.3 in.)
CAVITY DIMENSIONS (W X H X D)		350X230X355mm (13.8X9.1X14.0 in.)
NET WEIGHT		APPROX. 20kg (44.1 lbs.)
TIMER		60 minutes
FUNCTION SELECTIONS		MICROWAVE/ GRILL/ CONVECTION/ COMBINATION/(BBQ)
POWER SELECTIONS		10 LEVELS
CAVITY VOLUME		1.0 Cu. Ft

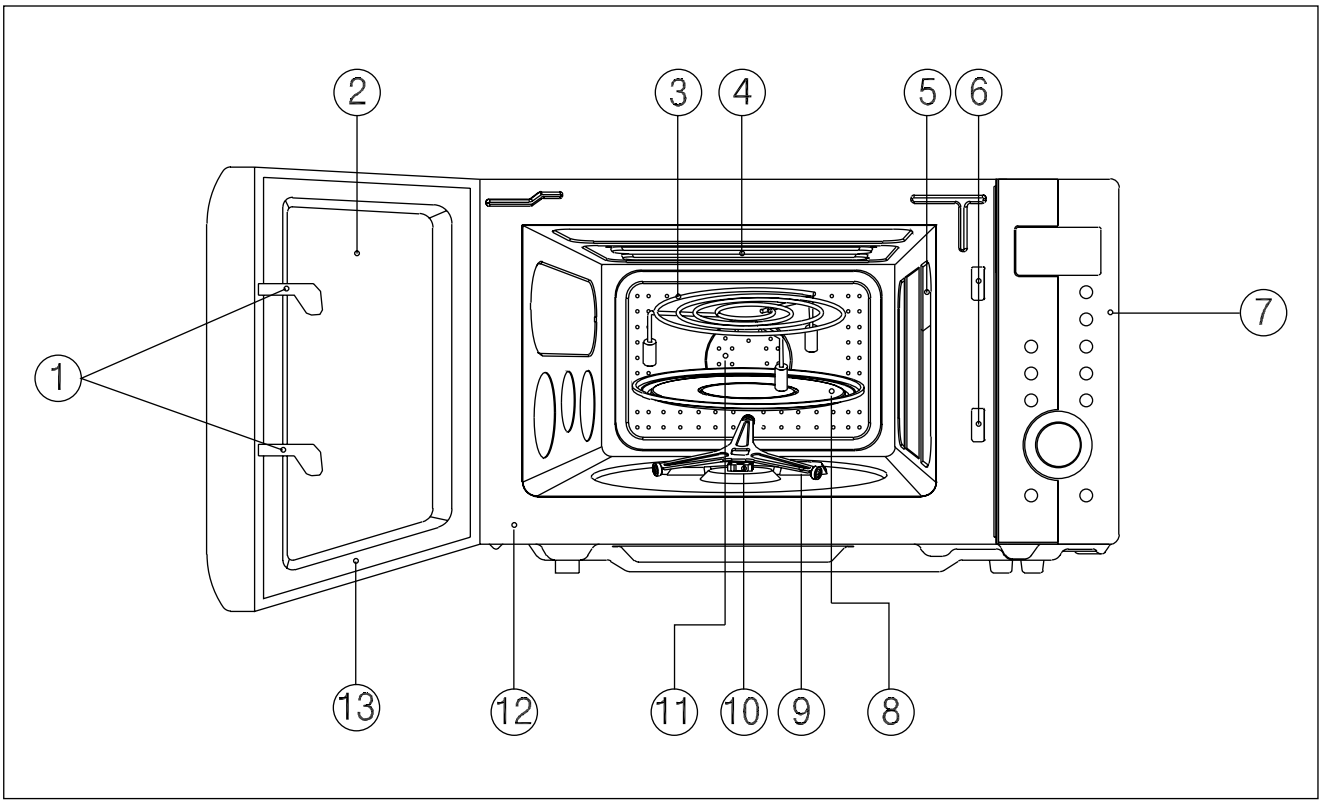
** Specifications are subject to change without notice.*

3. EXTERNAL VIEW

1. OUTER DIMENSION



2. FEATURE DIAGRAM



1. DOOR HOOK
When the door is closed, it will automatically lock shut. If door is opened while oven is operating, the magnetron will immediately stop operating.

2. DOOR VIEWING SCREEN
Allows viewing of food. The screen is designed so that light can pass through, but not the microwave.

3. METAL RACK

4. TOP HEATER
Turns on when convection, grill and combi cooking is selected.

5. OVEN LAMP
Automatically turns on during oven operating.

6. SAFETY INTERLOCK SYSTEM

7. CONTROL PANEL

8. TURNTABLE TRAY
Rotates during cooking and ensure even distribution of Microwaves.
It can also be used as a cooking utensil.

9. ROLLER GUIDE
This must always be used for cooking together with the turntable tray.

10. COUPLER
This fits over the shaft in the center of the ovens cavity floor. This is to remain in the oven for all cooking.

11. CONVECTION OUTLET & FAN

12. OVEN FRONT PLATE

13. DOOR SEAL
Door seal maintains the microwave energy within the oven cavity and prevents microwave leakage.

14. BARBECUE BAR (KOC-924T0S01/KOC-924T5S01)-Not seen.
This is used barbecue cooking.

4. INSTALLATION

1. Steady, flat location

This microwave oven should be set on a steady, flat surface.

This microwave oven is designed for counter top use only.

2. Leave space behind and side

All air vents should be kept a clearance. If all vents are covered during operation, the oven may overheat and, eventually, cause failure.

3. Away from Radio and TV sets

Poor television reception and radio interference may result if the oven is located close to a TV, Radio, antenna or feeder and so on.

Position the oven as far from them as possible.

4. Away from heating appliances and water taps

Keep the oven away from hot air, steam or splash when choosing a place to position it, or the insulation might be adversely affected and breakdowns occur.

5. Power supply

- Check your local power source. This microwave oven requires a current of approximately 15(KOC-924T0S)/ 12(KOC-924T5S) amperes, 230V, 50Hz.
- Power supply cord is about 1.2 meters long.
- The voltage used must be the same as specified on this oven. Using a higher voltage may result in a fire or other accident causing oven damage. Using low voltage will cause slow cooking. We are not responsible for damage resulting from use of this oven with a voltage of ampere fuse other than those specified.
- This appliance is supplied with cable of special type, which, if damaged, must be repaired with cable of same type.
- Such a cable can be purchased from DAEWOO and must be installed by a Qualified Person.

6. Examine the oven after unpacking for any damage such as:

A misaligned door, broken door or a dent in cavity.

If any of the above are visible, DO NOT INSTALL, and notify dealer immediately.

7. Do not operate the oven if it is colder than room temperature.

EARTHING INSTRUCTIONS

This appliance must be earthed. In the event of an electrical short circuit, earthing reduces the risk of the electric shock by providing an escape wire for the electric current. This appliance is equipped with a cord having a earthing wire with a earthing plug. The plug must be plugged into an outlet that is properly installed and earthed.

WARNING

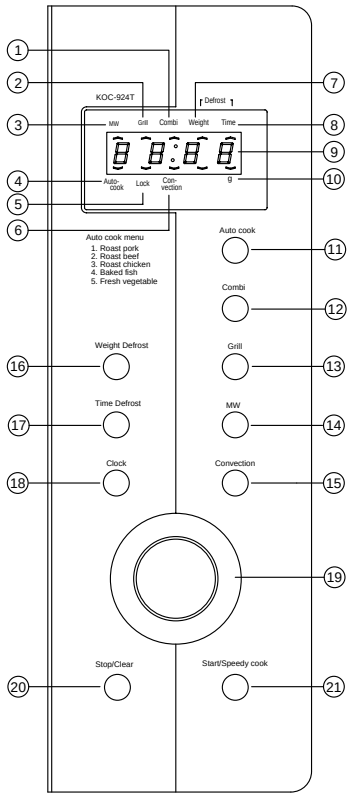
Improper use of the earthing plug can result in a risk of electric shock.

Consult a qualified electrician of serviceman if the earthing instructions are not completely understood, or if doubt exists as to whether the appliance is properly earthed, and either:

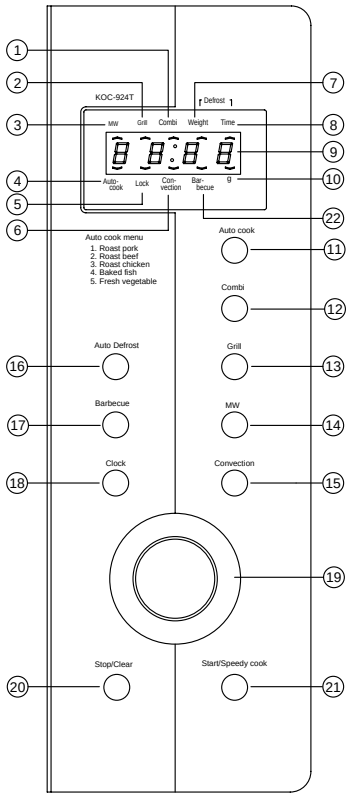
If it is necessary to use an extension cord, use only a 3-wire extension cord that has a 3-blade earthing plug, and a 3-slot receptacle that will accept the plug on the appliance.

The marked rating of the extension cord should be equal to or greater than the electrical rating of the appliance, or Do not use an extension cord.

5. CONTROL PANEL



KOC-924T0S/924T5S



KOC-924T0S01/924T5S01

Indicators on the display window

① **COMBI -** When blinking, the oven is operating in COMBI mode.
② **GRILL -** When blinking, the oven is operating in GRILL mode.
③ **MW -** When blinking, the oven is operating in MICROWAVE COOK mode.
④ **Auto Cook -** When blinking, the oven is operating in AUTO COOK mode.
⑤ **Lock -** When lighting, the oven is in CHILD LOCK mode.
⑥ **Convection -** When blinking, the oven is operating in CONVECTION mode.
⑦ **Defrost Weight -** When blinking, the oven is operating in WEIGHT DEFROST mode.
⑧ **Defrost Time -** When blinking, the oven is operating in TIME DEFROST mode.
⑨ **DISPLAY -** Cooking time, power level, indicators and time are displayed
⑩ **g -** When blinking, you can input the weight of food for cooking.
㉒ **BARBECUE -** When blinking, the oven is operating in barbecue. (KOC-924T0S01/924T5S01 only)

Buttons on the control panel

⑪ **AUTO COOK -** Press to select the auto cook menu.
⑫ **COMBI -** Press to select the combi cooking mode.
⑬ **GRILL -** Press to select the grill cooking mode.
⑭ **MW -** Press to select a microwave power level.
⑮ **CONVECTION -** Press to select convection temperature.
⑯ **WEIGHT DEFROST -** Press to select the weight defrosting cooking. (KOC-924T0S/924T5S only)
AUTO DEFROST - Press to select the auto defrosting cooking. (KOC-924T0S01/924T5S01 only)
⑰ **TIME DEFROST -** Press to select the time defrosting cooking. (KOC-924T0S/924T5S only)
BARBECUE - Press to select the barbecue cooking. (KOC-924T0S01/924T5S01 only)
⑱ **CLOCK -** Press to set the clock.
⑲ **DIAL KNOB -** Turn the dial knob to the cooking time, the weight of food or the quantity of food.
⑳ **STOP/CLEAR -** Press to stop the oven operation or to delete programmed cooking data.
㉑ **START/SPEEDY COOK -** Press to start a programmed cooking or for the speedy start(In the case, the microwave cooking time increases to 5 minutes by 30 seconds every pressing).

6. DISASSEMBLY AND ASSEMBLY

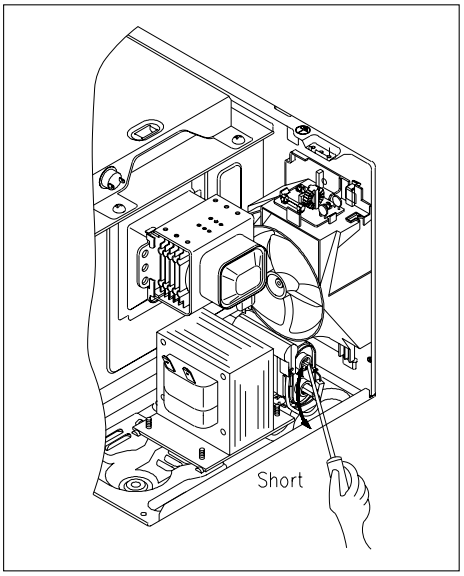
- Cautions to be observed when trouble shooting.

Unlike many other appliances, the microwave oven is high-voltage, high-current equipment. It is completely safe during normal operation. However, carelessness in servicing the oven can result in an electric shock or possible danger from a short circuit. You are asked to observe the following precautions carefully.

1. Always remove the power plug from the outlet before servicing.
2. Use an insulated screwdriver and wear rubber gloves when servicing the high voltage side.
3. Discharge the high voltage capacitor before touching any oven components or wiring.

(1) Check the grounding.
Do not operate on a two-wire extension cord.
The microwave oven is designed to be used while grounded.
It is imperative, therefore, to make sure it is grounded properly before beginning repair work.

(2) Warning about the electric charge in the high voltage capacitor.
For about 30 seconds after the operation has stopped, electric charge remains in the high voltage capacitor.
When replacing or checking parts, short between oven chassis and the negative high terminal of the high voltage capacitor by using a properly insulated screwdriver to discharge.



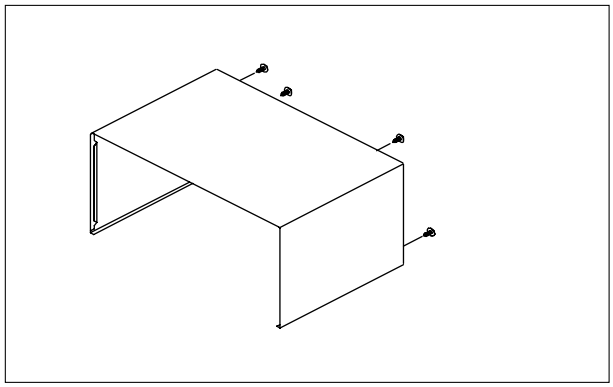
4. When the 20A fuse is blown out due to the operation of the monitor switch; replace primary interlock switch, secondary interlock switch and interlock monitor switch.
5. After repair or replacement of parts, make sure that the screws are properly tightened, and all electrical connections are tightened.
6. Do not operate without cabinet.

CAUTION : Service personnel should remove their watches whenever working close to or replacing the magnetron.

WARNING : When servicing the appliance, take care when touching or replacing high potential parts because of electrical shock or exposing microwave. These parts are as follows - HV Transformer, Magnetron, HV Capacitor, HV Diode.

1. To remove cabinet

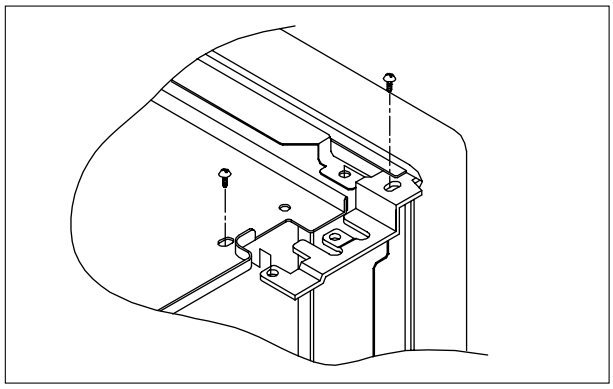
1) Remove four screws on cabinet back.
2) Push the cabinet backward.



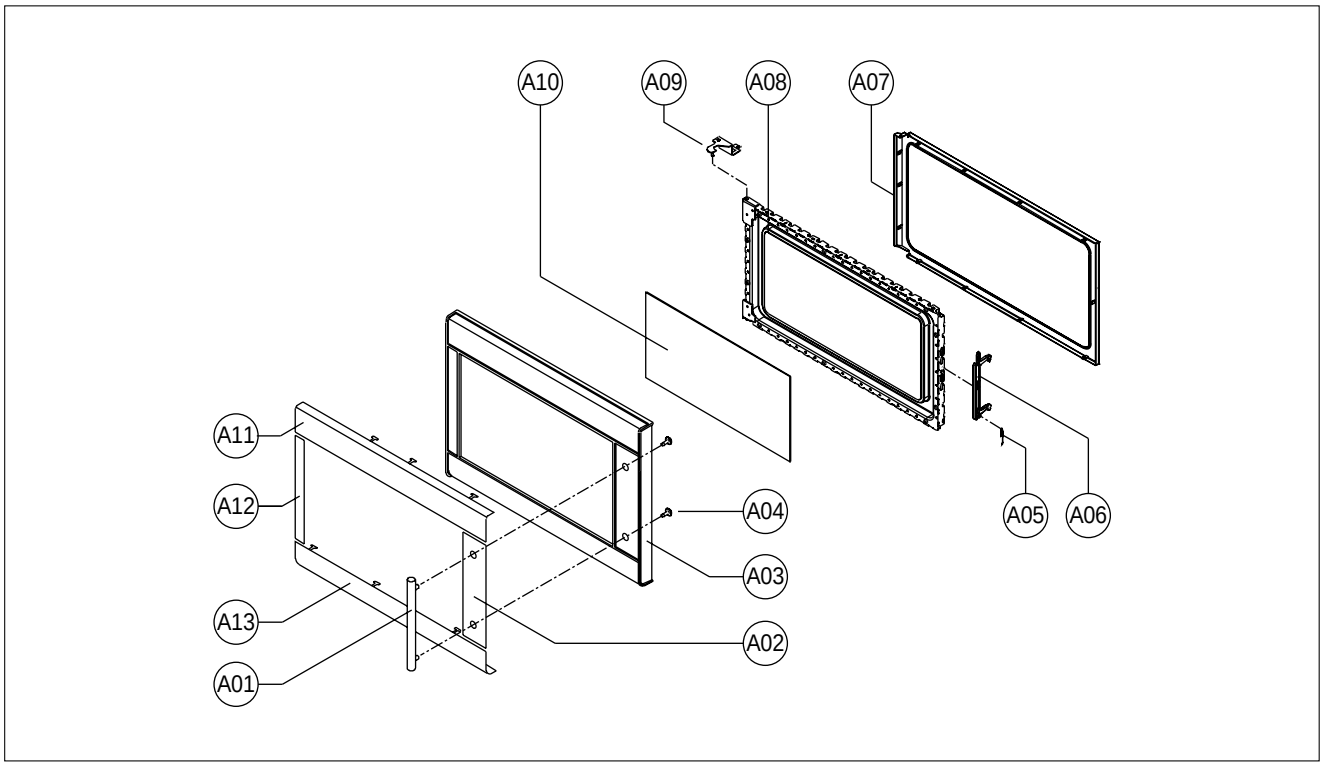
2. To remove door assembly

1) Remove two screws which secure the stopper hinge top.
2) Remove the door assembly from top plate of cavity.
3) Reverse the above for assemby.

NOTE: After replacing the door assembly, perform a check of correct alignment with the hinge and cavity front plate.



3. To remove door parts.



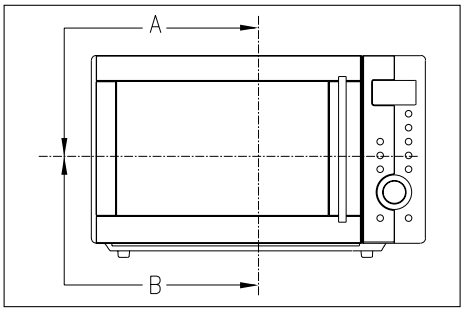
REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
A01	3512603620	HANDLE DOOR	S455C	1	
A02	3511608300	DECORATOR DOOR*R	SUS430 T0.5 H/L	1	
A03	3512204820	FRAME DOOR	ALLOY PC+ABS	1	
A04	7001503011	SCREW MACHINE	PAN 5*30 MFZN	2	
A05	3515101800	SPRING HOOK	PW1	1	
A06	3513101200	HOOK	POM	1	
A07	3512302400	GASKET DOOR	PBT	1	
A08	3516602200	DOOR PLATE	SBHG-3A T0.7	1	
A09	3515304800	SUPPORTER HINGE*T	SCP-1 T2.0	1	
A10	3517007000	BARRIER-SCREEN*I	TEMP GLASS T2.0	1	
A11	3511608700	DECORATOR DOOR*T	SUS430 T0.5 H/L	1	
A12	3511608400	DECORATOR DOOR*L	SUS430 T0.5 H/L	1	
A13	3511608200	DECORATOR DOOR*U	SUS430 T0.5 H/L	1	

(1) Remove the gasket door from door plate.
(2) Remove screws from door plate.
(3) Remove the door frame from door plate.
(4) Remove the stopper hinge top from door plate.
(5) Remove the spring and the hook.
(6) Remove the handle door and barrier screen outer from door frame.
(7) Reverse the above steps for reassembly.

4. Method to reduce the gap between the door seal and the oven front surface.

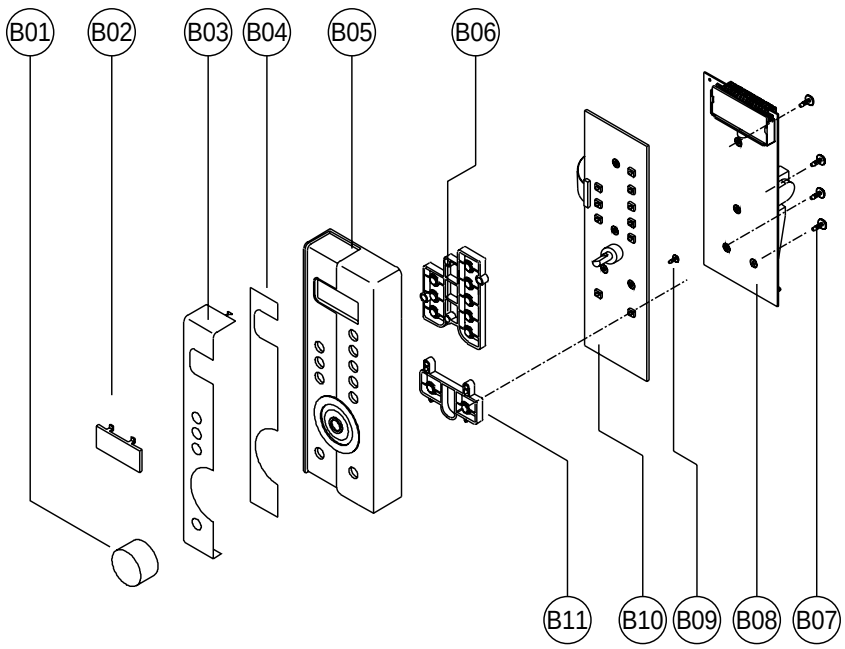
(1) To reduce gap located on part 'A'.
- Loosen two screws on stopper hinge top, and then push the door to contact the door seal to oven front surface.
- Tighten two screws.

(2) To reduce gap located on part 'B'.
- Loosen two screws on stopper hinge under, and then push the door to contact the door seal to oven front surface.
- Tighten two screws.



NOTE : A small gap may be acceptable if the microwave leakage does not exceed 4mW/cm^2.

5. To remove control panel parts.

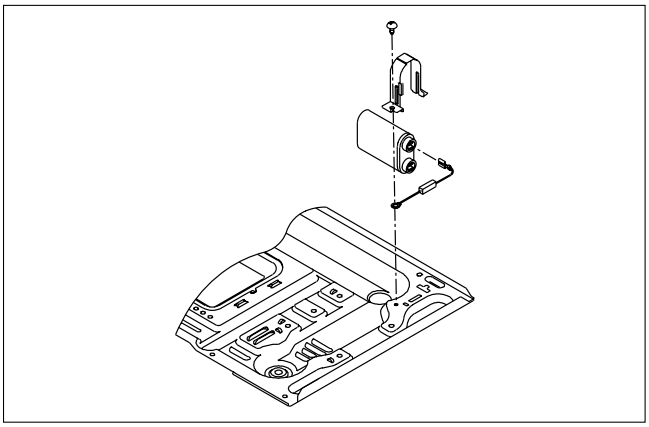


REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
B01	3513406310	KNOB VOLUME	ABS SG-175 SG-0760D	1	
B02	3515501820	WINDOW DISPLAY	PMMA	1	
B03	3511608100	DECORATOR C-PANEL	SUS430 T0.5 H/L	1	
B04	3516003940	SPECIAL DOUBLE TAPE	SI-161 T0.15	1	
B05	3516725220	CONTROL-PANEL	ABS XR-401 SG-0320G	1	
B06	3516909040	BUTTON FUNCTION-A	ABS SG-175 SG-0760D COAT	1	
B07	71222401211	SCREW TAPPING	T2S TRS 4*12 MFZN	4	
B08	3514323740	PCB MAIN AS	KOC-924T0S/KOC-924T5S	1	
B09	7121301011	SCREW TAPPING	T2S PAN 3*10 MFZN	5	
B10	3514323820	PCB SUB AS	KOC-924T0S/KOC-924T5S	1	
B11	3516909050	BUTTON FUNCTION-B	ABS SG-175 SG-0760D COAT	1	

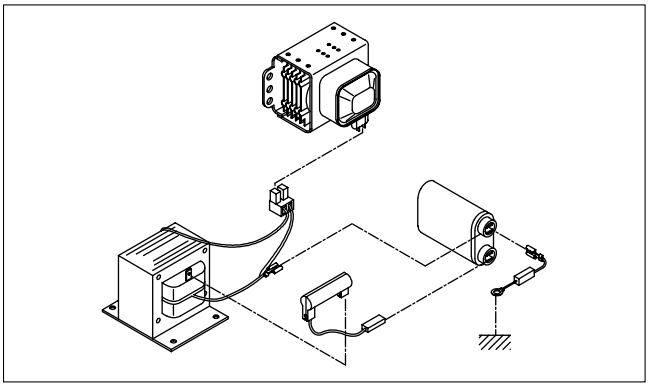
(1) Remove the screw which secure the control panel, push up two snap fits and draw forward the control panel assembly.
(2) Remove four screws(B07) which secure the PCB Main ASS'Y.
(3) Pull out the Main PCB assembly(B08).
(4) Remove four screws(B09) which secure the PCB Sub ASS'Y.
(5) Pull out the Sub PCB assembly(B10).
(6) Pull out the Knob volume(B01) from the Sub PCB assembly.
(7) Pull out ten buttons from the control panel.
(8) Pull out Decorator control panel(B03) from the control panel.
(9) Pull out Window display(B02) from the control panel.
(10) Reverse the above steps for reassembly.

6. To remove high voltage capacitor.

1) Remove a screw which secure the grounding ring terminal of the H.V. diode and the capacitor holder.
2) Remove the H.V. diode from the capacitor holder.
3) Reverse the above steps for reassembly.

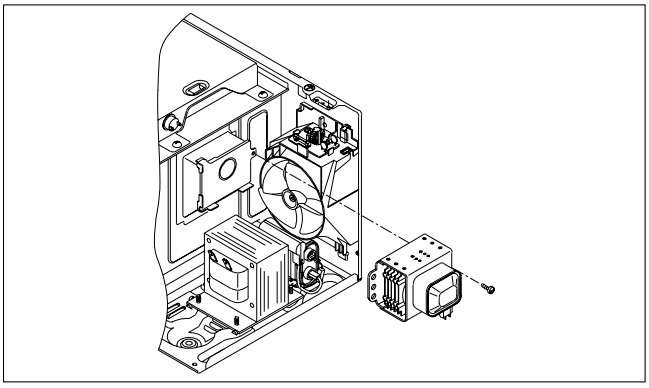


◆ High voltage circuit wiring

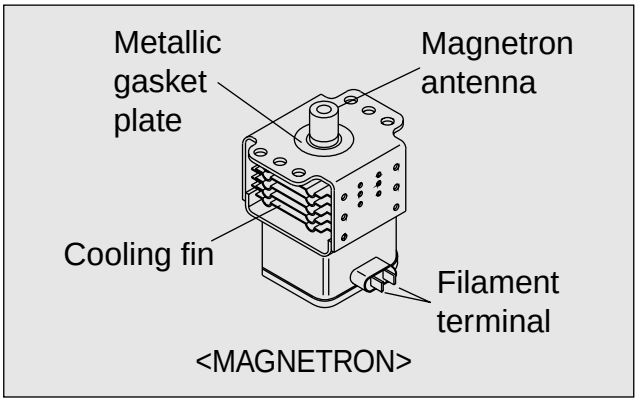


7. To remove magnetron.

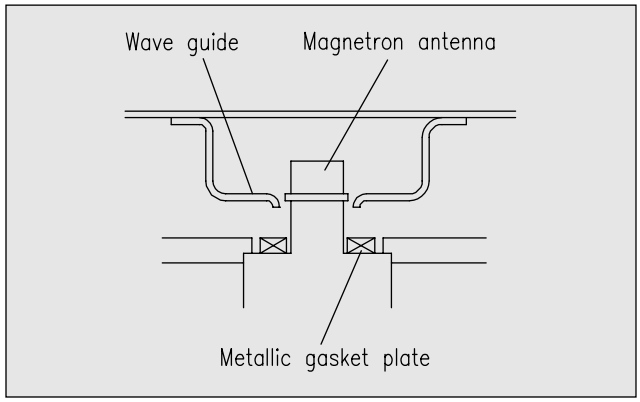
1) Remove a screw which secure the magnetron.
2) Remove the magnetron.
3) Reverse the above steps for reassembly.



CAUTION : Never install the magnetron without the metallic gasket plate which is packed with each magnetron to prevent microwave leakage. Whenever repair work is carried out on magnetron, check the microwave leakage. It shall not exceed 4mW/cm^2 for a fully assembled oven with door normally closed.

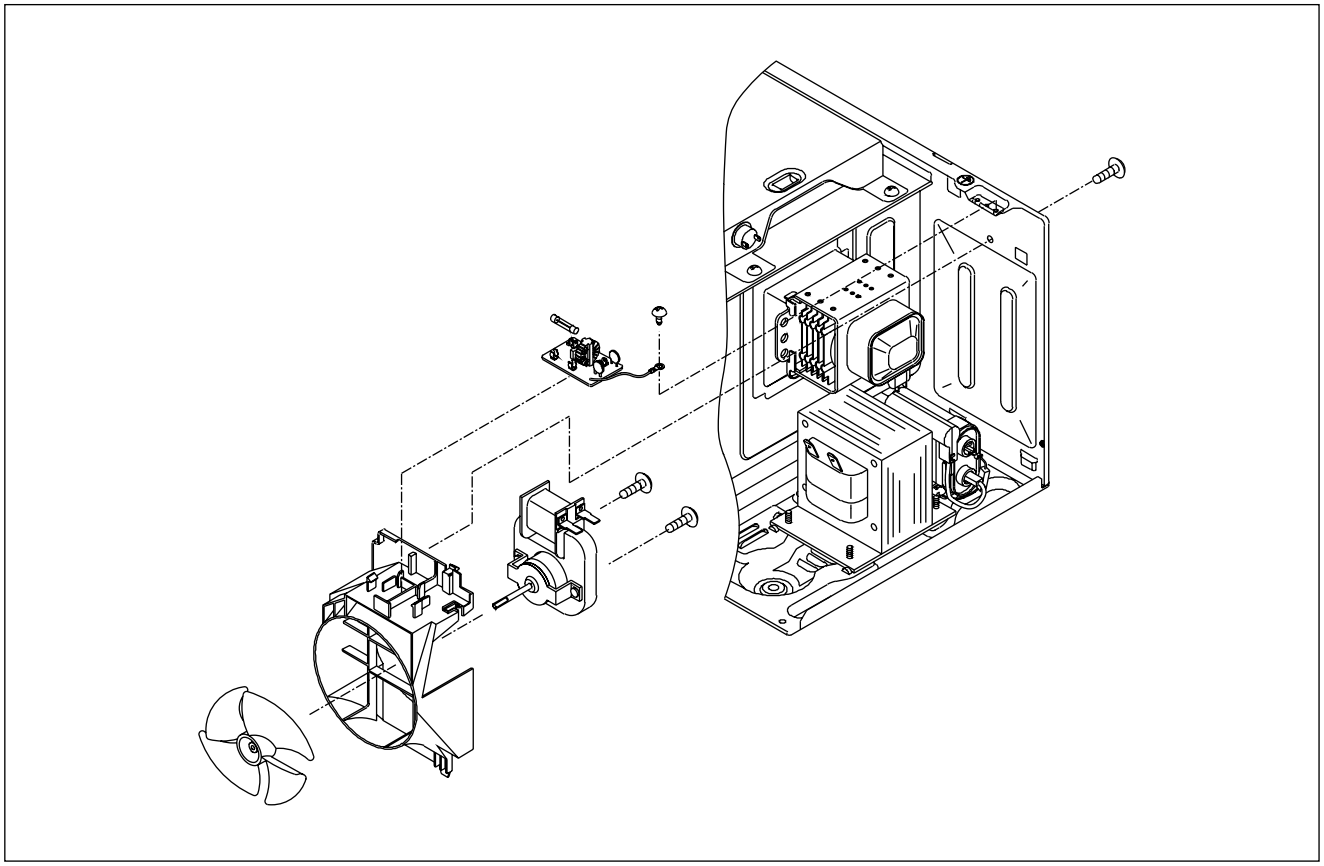


<MAGNETRON>



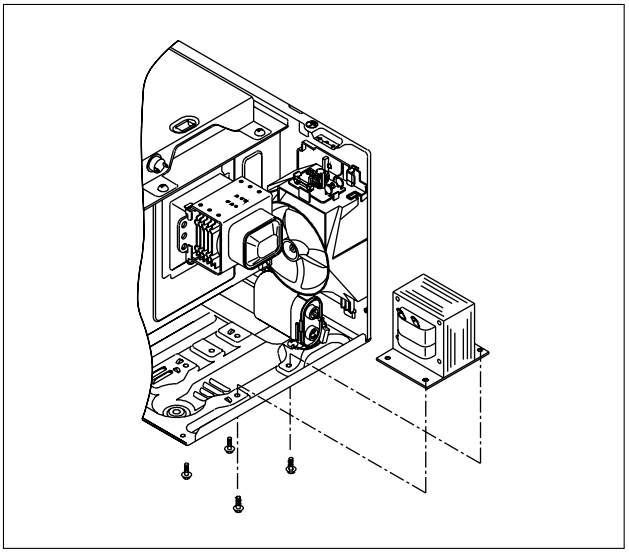
8. To remove wind guide assembly.

1) Remove a screw for earthing.
2) Remove the noise filter from the wind guide.
3) Remove a screw which secure the wind guide assembly.
4) Draw forward the wind guide assembly.
5) Pull the fan from the motor shaft.
6) Remove two screws which secure the motor shaded pole.
7) Remove the motor shaded pole.
8) Reverse the above steps for reasembly.

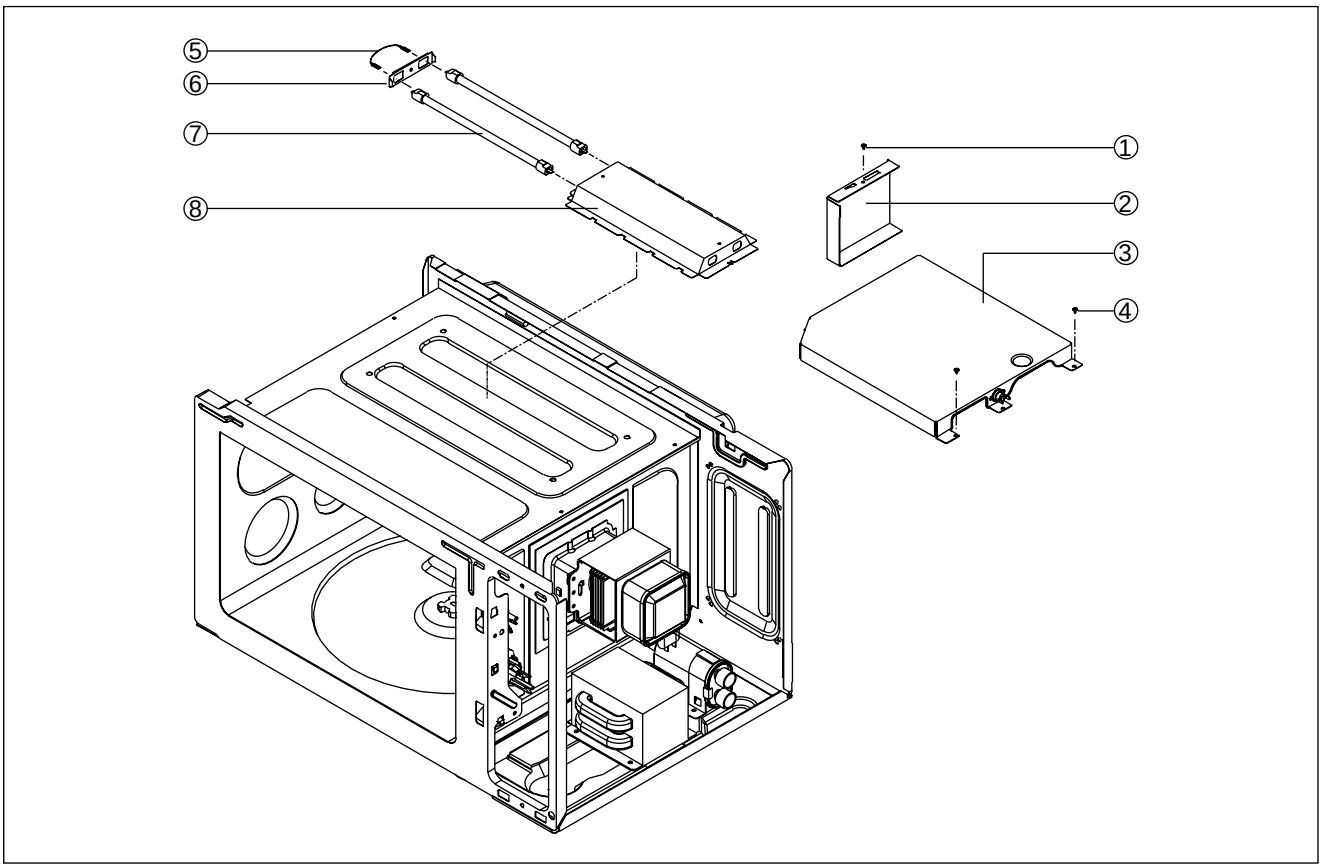


9. To remove H.V.transformer.

1) Remove four screws holding the H.V.transformer.
2) Remove the H.V.transformer.
3) Reverse the above steps for reassembly.



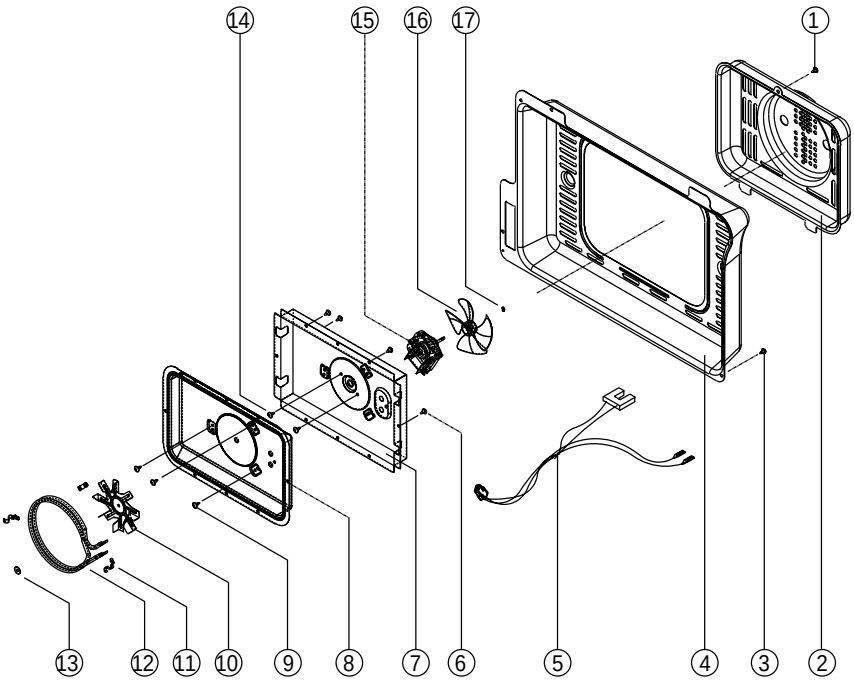
10. To remove Top heater assembly parts.



REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
1	7112401011	SCREW TAPPING	T1 TRS 4X10 MFZN	1	
2	3512520500	GUIDE AIR OUTLET	SA1D T0.5	1	
3	3513303000	INSULATOR HEATER*T	SECC T0.5	1	
4	7112401011	SCREW TAPPING	T1 TRS 4X10 MFZN	2	
5	3512767000	HARNESS HEATER	KOC-1B0K0S	1	
6	3510607700	BRACKET HEATER *T	SA1D T0.5	1	
7	3512803800	HEATER MIRACLON	115V 550W 270MM	2	
8	3511407600	COVER HEATER *T	STS430 T0.5	1	

1) Remove a screw ① and pull out Guide air outlet ②.
2) Remove two screws④ and pull out insulator heater *t③.
3) Pull out the Top heater assembly.
4) Pull out the Harness heater⑤.
5) Pull out the Braket heater*t from the Cover heater*t⑧.
6) Pull out the Heater miraclon⑦ from the Cover heater*t⑧.
7) Reverse the above steps for reassembly.

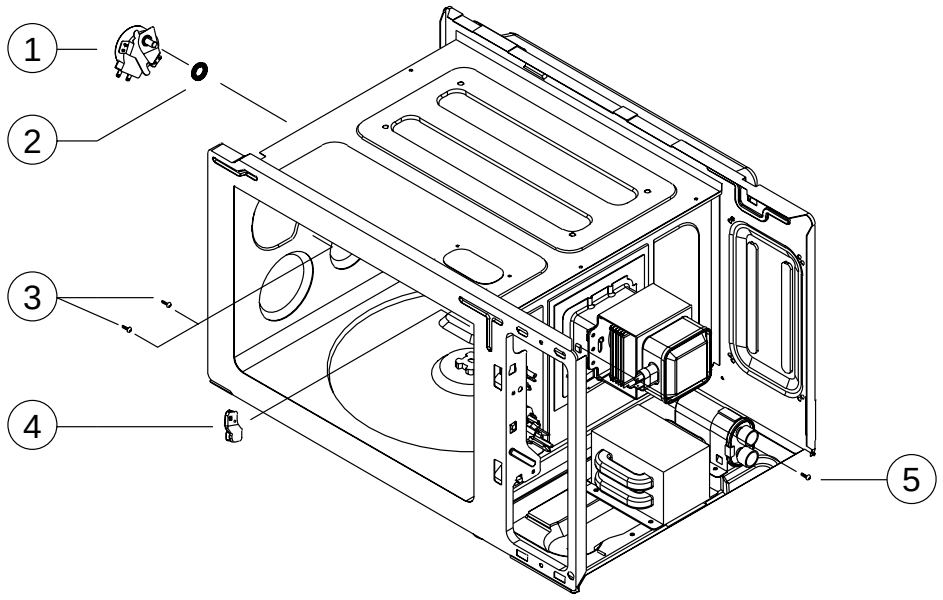
11. To remove Rear heater assembly parts.



REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
1	3511407300	COVER MOTOR*B	SA1D-80 T0.5	1	
2	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
3	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
4	3511407900	COVER*B	SA1D-80 T0.5	1	
5	3512767600	HARNESS CONVECTION	KOC-924T0S	1	
6	7113400814	SCREW TAPPING	T1 BIN 4*8 MFNI	4	
7	3511409800	COVER HEATER*B	SA1D-80 T0.5	1	
8	3513303400	INSULATOR HEATER*B	SBHG-1 T0.5	1	
9	7113400814	SCREW TAPPING	T1 BIN 4*8 MFNI	3	
10	3511800700	FAN CONVECTION	SA1D-80 T0.5	1	
11	3513002300	HOLDER HEATER	SUS430 T-.5	3	
12	3512801800	HEATER	230V 1400W 1R18344	1	
13	7400104011	WASHER PLAIN	PW-1-4 MFZN	1	
14	7051400811	SCREW MACHINE	PAN 4*8 SW MFZN	2	
15	3963514300	MOTOR SHADED POLE	230V 50HZ MW10CA-T02	1	
16	3511800800	FAN	P.P GF20	1	
17	7402704600	RING C	CR-5 SK5	1	

1) Remove a screw ① and pull out Cover motor *B②.
2) Remove a screw ③ and pull out Cover *B④.
3) Pull out the Harness convection-B⑤.
4) Remove four screws⑥ and then pull out the Rear heater assembly.
5) Remove a Nut⑬ and the pull out the Fan convection⑩.
6) Remove three screws⑨ and then separate the Cover heater *B⑦ and the Insulator heater *B⑧.
7) Pull out the Heater⑫ from the Cover Heater *B⑦.
8) Remove two screw⑭ and then separate the Insulator heater *B⑧ and Motor shaded pole⑮.
9) Remove the C-Ring⑰ and then pull out the Fan⑯ from Motor shaft.
10)Reverse the above steps for reassebly.

12 To remove Barbecue motor syncro and Guide rotary part.

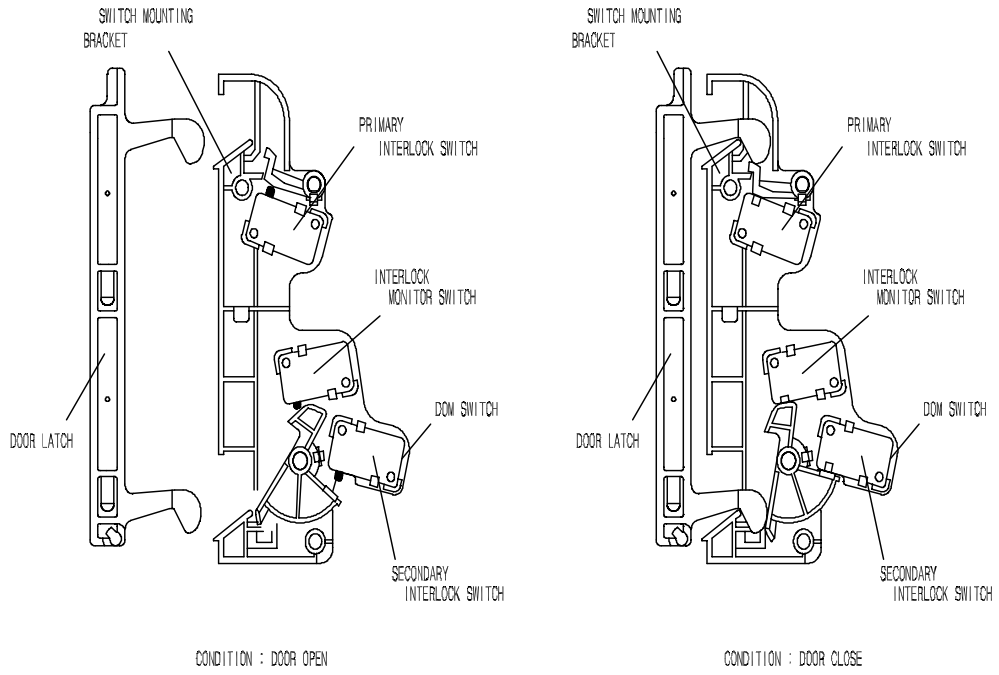


REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
1	441BE5203	MOTOR SYNCRO	GM-20-24FDB2	1	
2	3512300301	GASKET	C2700W T1.0	1	
3	7113400814	SCREW TAPPING	T1 BIN 4X8 MFNI	2	
4	3512521200	GUIDE ROTARY	TEFLON	1	
5	7112401011	SCREW TAPPING	T1 TRS 4X10 MFZN	1	

1) Remove a screw③ and then pull out Motor syncro①.
2) Pull out the Gasket② from the Motor syncro.
3) Remove a screw⑤ and then pull out Rotary guide④.
4) Reverse the above steps for reassembly.

7. INTERLOCK MECHANISM AND ADJUSTMENT

The door lock mechanism is a device which has been specially designed to completely eliminate microwave radiation when the door is opened during operation, and thus to perfectly prevent the danger resulting from the leakage of microwave.



(1) Primary interlock switch

When the door is closed, the hook locks the oven door. If the door is not closed properly, the oven will not operate.
When the door is closed, the hook pushes the button of the microswitch. Then the button of the primary interlock switch bring it under ON condition.

(2) Secondary interlock switch and interlock monitor switch

When the door is closed, the hook pushes the lock lever downward. The lock lever presses the button of the interlock monitor switch to bring it under OFF condition and presses the button of the secondary interlock switch to bring it under ON condition.

ADJUSTMENT :

Interlock monitor switch

When the door is closed, the interlock monitor switch should be opened before other switches are closed.
When the door is opened, the interlock monitor switch should be closed after other switches are opened.

(3) Adjustment steps

a) Loosen the one mounting screw.
b) Adjust interlock switch assembly position.
c) Make sure that lock lever moves smoothly after adjustment is completed.
d) Tighten completely two mounting screws.

NOTE :

Microwave emission test should be performed after adjusting interlock mechanism.
If the microwave emission exceed 4mW/cm^2, readjust interlock mechanism.

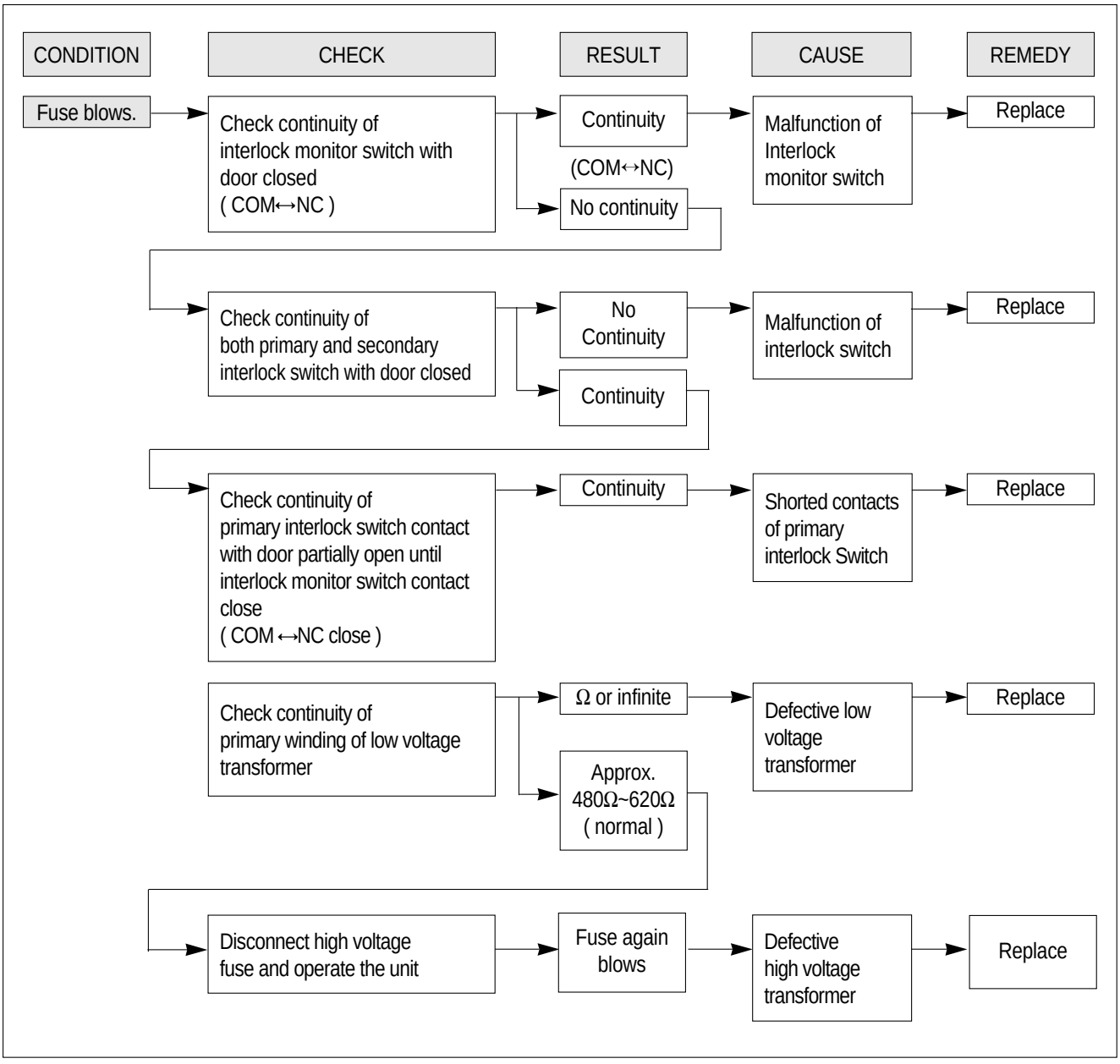
8. TROUBLE SHOOTING GUIDE

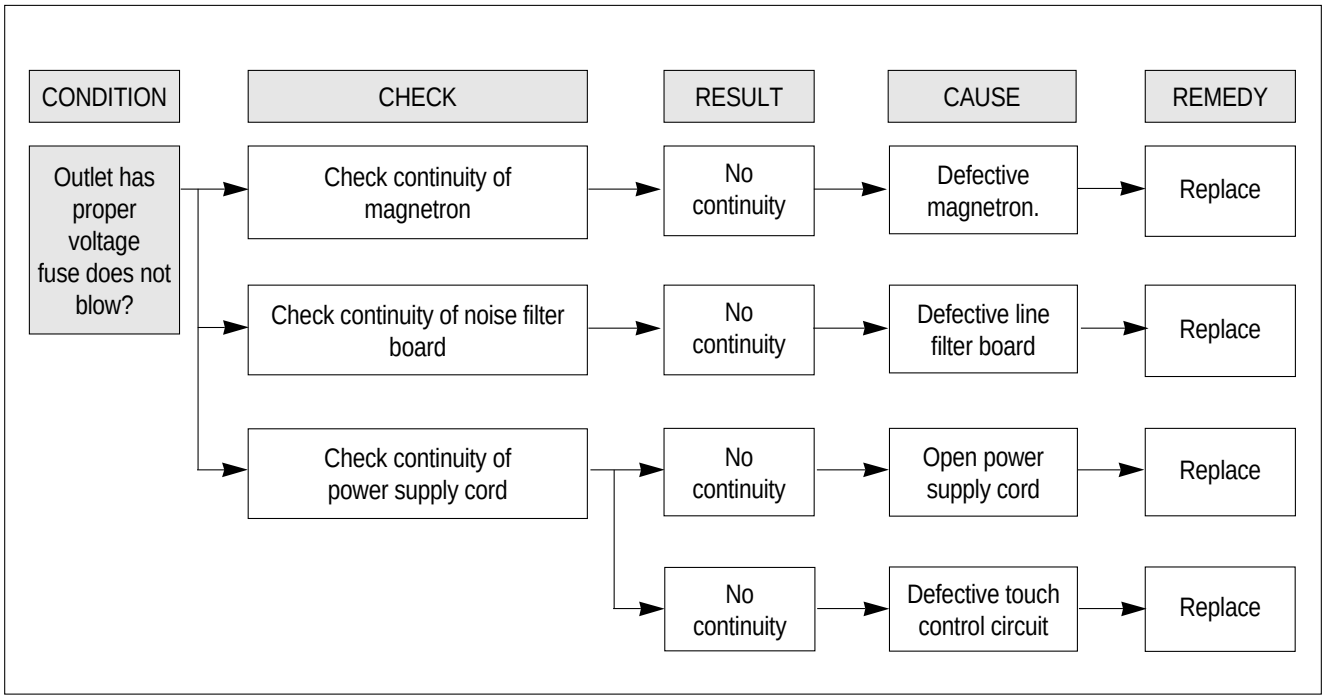
Following the procedure below to check if the oven is defective or not.

1) Check grounding before trouble checking.
2) Be careful of the high voltage circuit.
3) Discharge the high voltage capacitor.
4) When checking the continuity of the switches, fuse or high voltage tranformer, disconnect one load wire from these parts and check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.

NOTE : When electric parts are checked, be sure the power cord is not inserted the wall outlet.
Check wire harness, wiring and connection of the terminals and power cord before check the parts listed below.

(TROUBLE 1) Oven does not operate at all : any inputs can not be accepted.

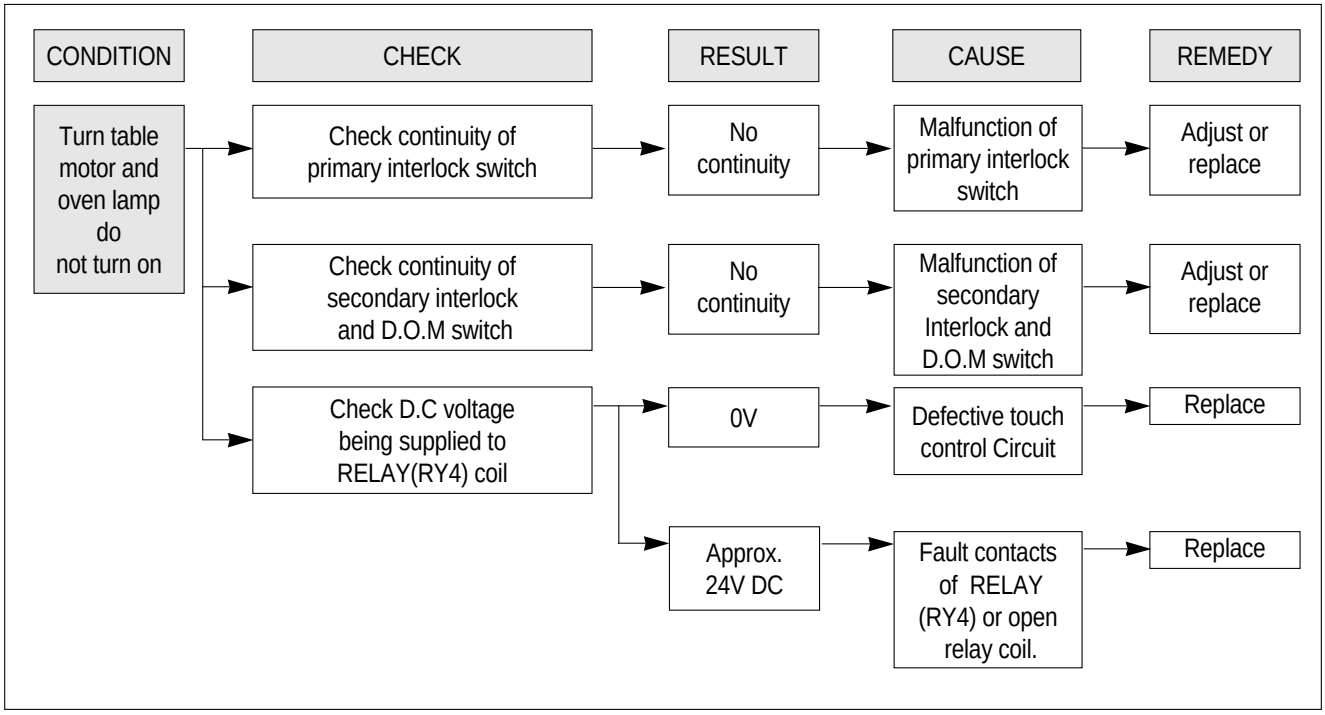




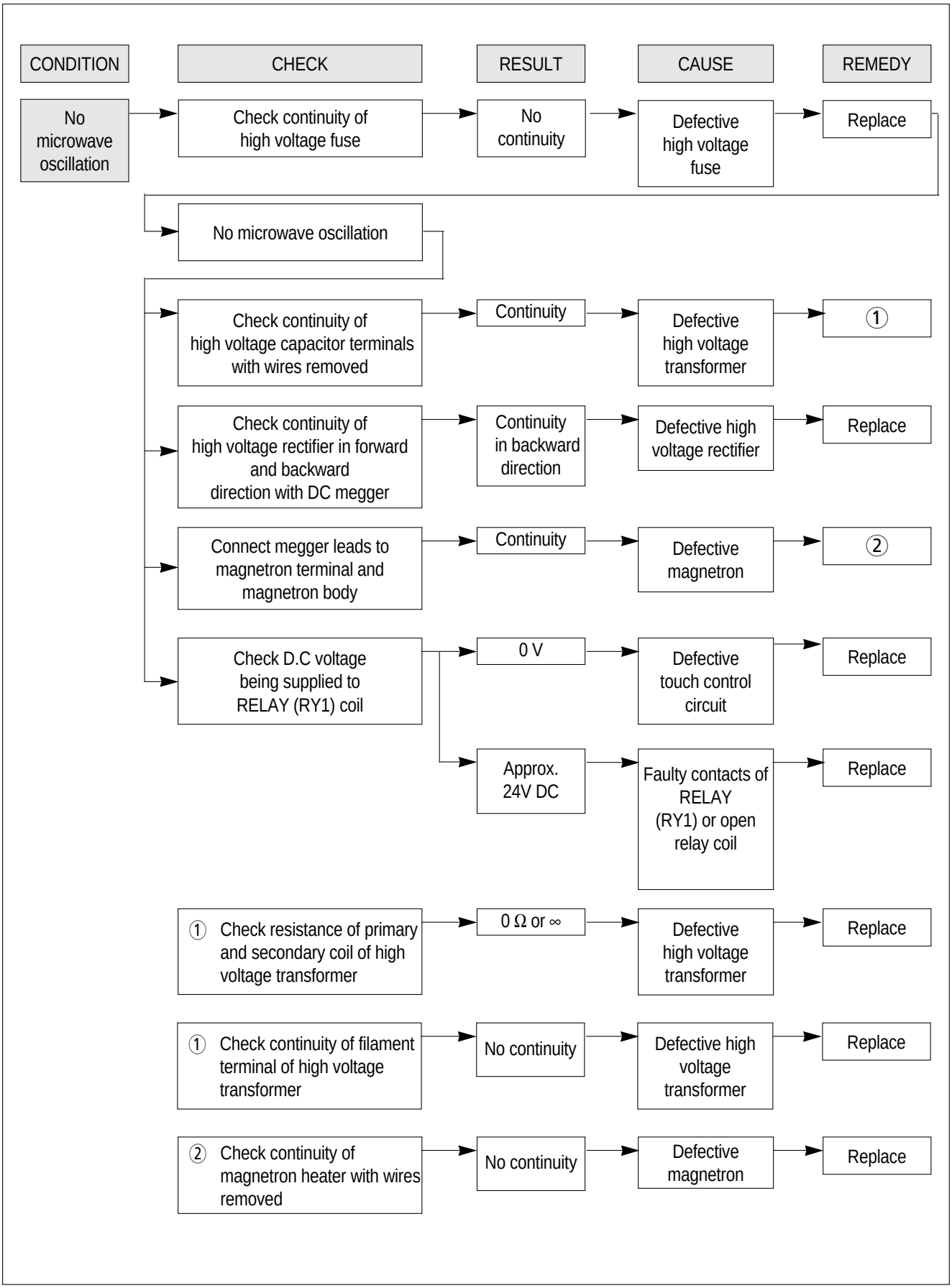
NOTE : All these switches must be replaced at the same time, please refer to (7.Interlock mechanism and adjust) for adjustment instructions

(TROUBLE 2)

Display shows all figures selected, but oven does not start cooking, even though desired program and time are set and start button is tapped.

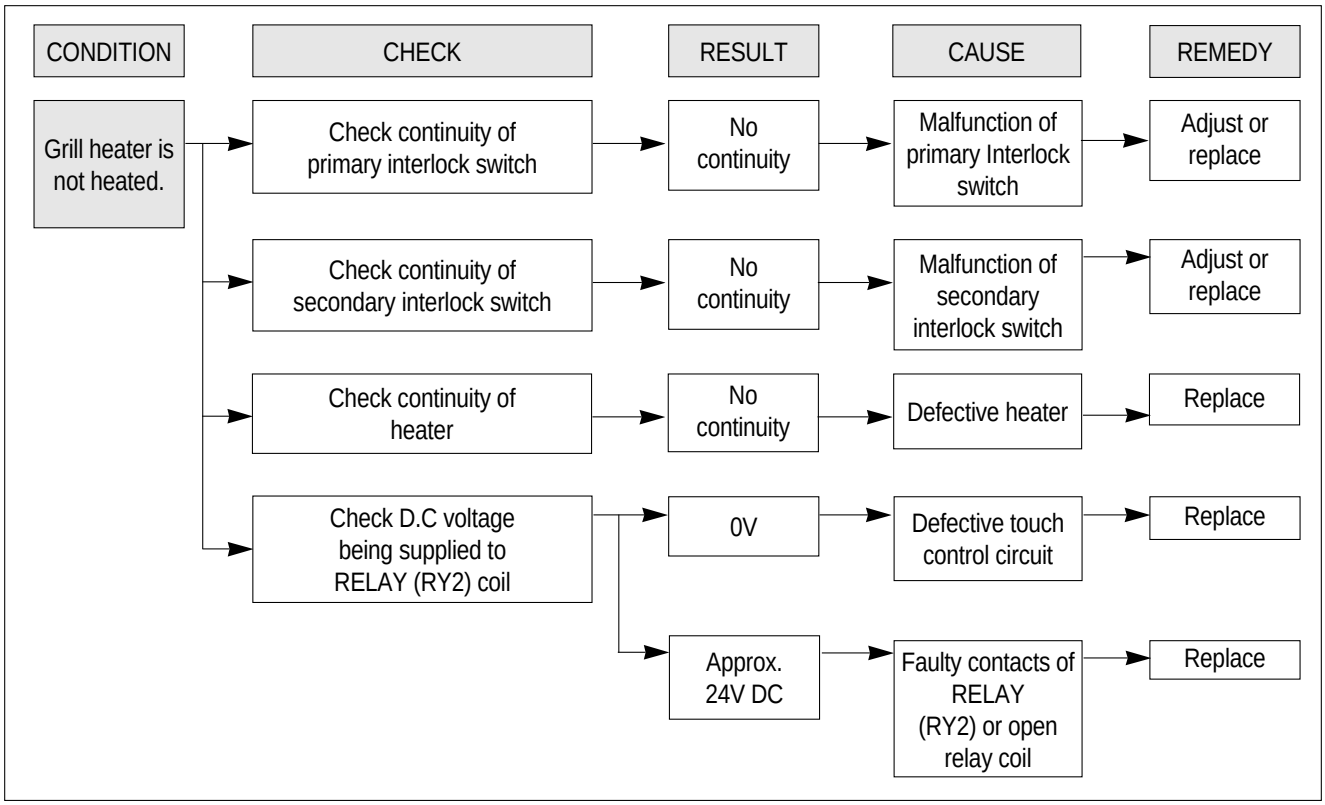


TROUBLE 3) No microwave oscillation even though fan motor rotates.



(TROUBLE 4)

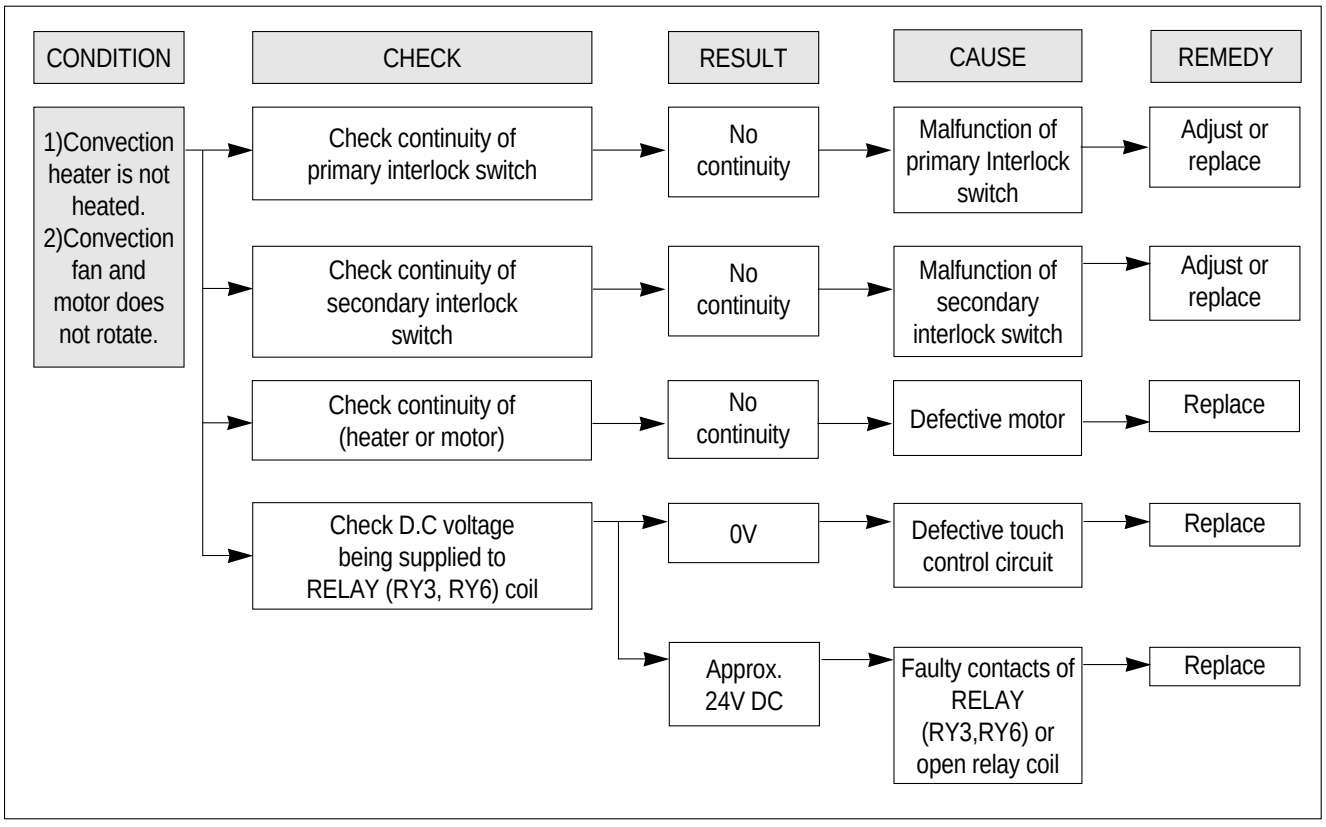
Grill heater (upper heater) is not heated; food will not become hot.



(TROUBLE 5)

1) Convection heater is not heated; food will not become hot.

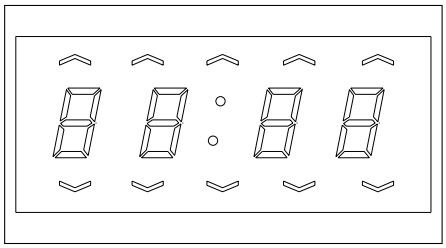
2) Convection fan motor does no rotate.



(TROUBLE 6)

The following visual conditions inditions indicate a probable defective touch control Circuit or button P.C.B. assembly

1. Incomplete segments.
   1) segment missing
   2) partial segments missing
   3) digit flickering other than normal fluorescent slight flickering
2. A distinct change in the brightness of one or more numbers exists in the display
3. One or more digits in the display are not on when they should be.
4. Display does not count down or up with time cooking or clock operation.
5. Oven is programmable and cooks normally but no display shows.
6. Display obviously jumps in time while counting down.
7. Display counts down noticeably too fast while cooking.
8. Display does not show the time of day when clear button is touched.
9. Oven lamp and turn table motor do not stop although cooking is finished.
   Check if the RELAY(RY4) contacts close and if they are close, replace touch control circuit.



CONDITION	CHECK	RESULT	CAUSE	REMEDY
Display does not show programming at all, even if keyboard is touched.	Check each button for continuity of the button	Normal	Malfunction of sub pcb assembly	Replace control box sub-assembly

(TROUBLE 7)

When "ERROR 2 ERROR 3" come on display.

CONDITION	CHECK	RESULT	CAUSE	REMEDY
"ERROR 2 & ERROR 3" come on display	Check continuity of thermistor (resistance of thermistor)	0Ω or infinite	Replace	Replace
		Approx 200~300kΩ (room temperature)		
	Check continuity of heater (convection, upper, lower)	No continuty	Defective heater	Replace
		continuity	Defective touch control circuit	Replace

9. MEASUREMENT AND TEST

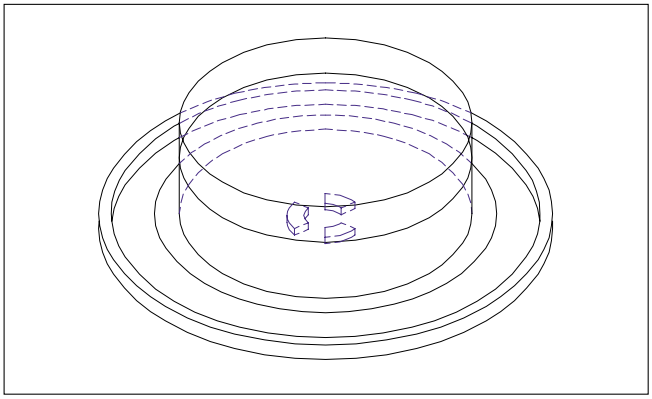
1. MEASUREMENT OF THE MICROWAVE POWER OUTPUT

Microwave output power can be checked by indirectly measuring the temperature rise of a certain amount of water exposed to the microwave as directed below.

PROCEDURE

1. A cylindrical container of borosilicate glass is used for the test. It has a maximum thickness of 3mm, an external diameter of approximately 190mm and a height of approximately 90mm.
   The mass of the container is determined.
2. At the start of the test, the oven and the empty container are at ambient temperature. Water having an initial temperature of 10˚C ± 1˚C is used for the test. The water temperature is measured immediately before it is poured into the container.
3. A quantity of 1000g ± 5g of water is added to the container and its actual mass obtained.
   The container is then immediately placed in the centre of the oven shelf, which is in its lowest normal position. The oven is operated and the time for the water temperature to attain 20˚C ± 2˚C is measured. The oven is then switched off and the final water temperature is measured within 60s.

   NOTE 1 - The water stirred is before its temperature is measured.
   NOTE 2 - Stirring and measuring devices are to have a low heat capacity.



4. The microwave power output is calculated from the formula

$$P = 4{,}187 \cdot m_W (T_2 - T_1) + 0.55 \cdot m_C (T_2 - T_0)/t$$

where
P is the microwave power output, in watts ;
m_W is the mass of the water, in grams ;
m_c is the mass of the container, in grams ;
T_0 is ambient temperature, in degrees Celsius ;
T_1 is the initial temperature of the water, in degree Celsius ;
T_2 is the final temperature of the water, in degrees Celsius ;
t is the heating time, in seconds, excluding the magnetron filament heating-up time.

* The microwave power output is stated in watts, rounded off to the nearest 50W

CAUTION
1. Water load should be measured exactly to 1 liter.
2. Input power voltage should be exactly specified voltage (Refer to SPECIFICATIONS).
3. Ambient temperature should be 20 ± 2°C (68 ± 3.6°F)

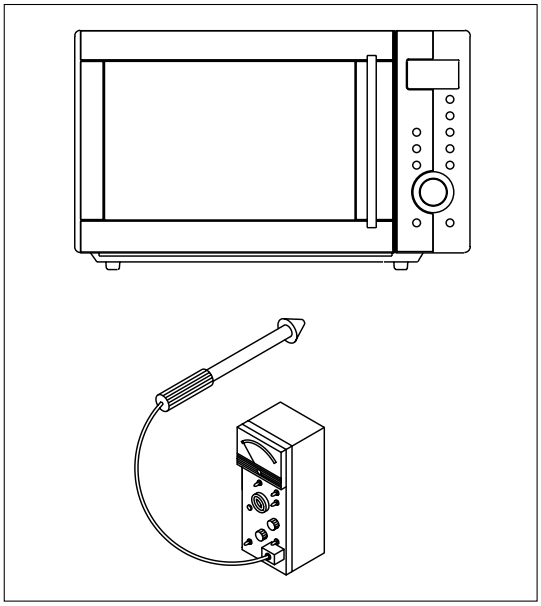
*** Heating time for power output: ($T_2 = T_0$)**

A (second)	70	64	60	56	52	49	47	44	42	40	38
B (W)	600	650	700	750	800	850	900	950	1000	1050	1100

2. MICROWAVE RADIATION TEST

WARNING
1. Make sure to check the microwave leakage before and after repair of adjustment.
2. Always start measuring of an unknown field to assure safety for operating personnel from microwave energy.
3. Do not place your hands into any suspected microwave radiation field unless the safe density level is known.
4. Care should be taken not to place the eyes in direct line with the source of microwave energy.
5. Slowly approach the unit under test until the radiometer reads an appreciable microwave leakage from the unit under the test.

PROCEDURE



1. Prepare Microwave Energy Survey Meter, 600cc glass beaker, and glass thermometer 100°C (212°F).

2. Pour 275cc ± 15cc of tap water initially at 20 ± 5°C (68 ± 9°F) in the 600 cc glass beaker with an inside diameter of approx. 95 mm(3.5 in.).

3. Place it at the center of the tray and set it in a cavity.

4. Close the door and operate the oven.

5. Measure the leakage by using Microwave Energy Survey Meter with dual ranges, set to 2450MHz.
   1) Measured radiation leakage must not exceed the value prescribed below. Leakage for a fully assembled oven with door normally closed must be less than 4mW/Cm^2.
   2) When measuring the leakage, always use the 5 cm (2 in.) space cone with probe. Hold the probe perpendicular to the cabinet and door. Place the space cone of the probe on the door, cabinet, door seem, door viewing screen, the exhaust air vents and the suction air vents.
   3) Measuring should be in a counter-clockwise direction at a rate of 1 in./sec. If the leakage of the cabinet door seem is unknown, move the probe more slowly.
   4) When measuring near a corner of the door, keep the probe perpendicular to the areas making sure the probe end at the base of the cone does not get closer than 2 in. from any metal. If it does not, erroneous reading may result.

3. COMPONENT TEST PROCEDURE

- High voltage is present at the high voltage terminal of the high voltage transformer during any cooking cycle.
- It is neither necessary nor advisable to attempt measurement of the high voltage.
- Before touching any oven components or wiring, always unplug the oven from its power source and discharge the capacitor.

1. High voltage transformer

1) Remove connections from the transformer terminals and check continuity.
2) Normal readings should be as follows :
   Secondary winding ... Approx. 100 Ω±10%
   Filament winding ... Approx. 0 Ω
   Primary winding ... Approx. 1.2 Ω

2. High voltage capacitor

1) Check continuity of capacitor with meter on the highest OHM scale.
2) A normal capacitor will show continuity for a short time, and then indicate 10MΩ once the capacitor charged.
3) A shorted capacitor will show continuous continuity.
4) An open capacitor will show constant 10MΩ.
5) Resistance between each terminal and chassis should be infinite.

3. High voltage diode

1) Isolate the diode from the circuit by disconnecting the leads.
2) With the ohmmeter set on the highest resistance scale measure the resistance across the diode terminals. Reverse the meter leads and again observe the resistance reading. Meter with 6V, 9V or higher voltage batteries should be used to check the front-back resistance of the diode, otherwise an infinite resistance may be read in both directions. A normal diode's resistance will be infinite in one direction and several hundred k Ω in the other direction.

4. Magnetron

For complete magnetron diagnosis, refer to "Measurement of the Microwave Power Output." Continuity checks can only indicate and open filament or a shorted magnetron. To diagnose for an open filament or a shorted magnetron,
1) Isolate magnetron from the circuit by disconnecting the leads.
2) A continuity check across magnetron filament terminals should indicate 0.1 Ω or less.
3) A continuity check between each filament terminal and magnetron case should read open.

5. Fuse

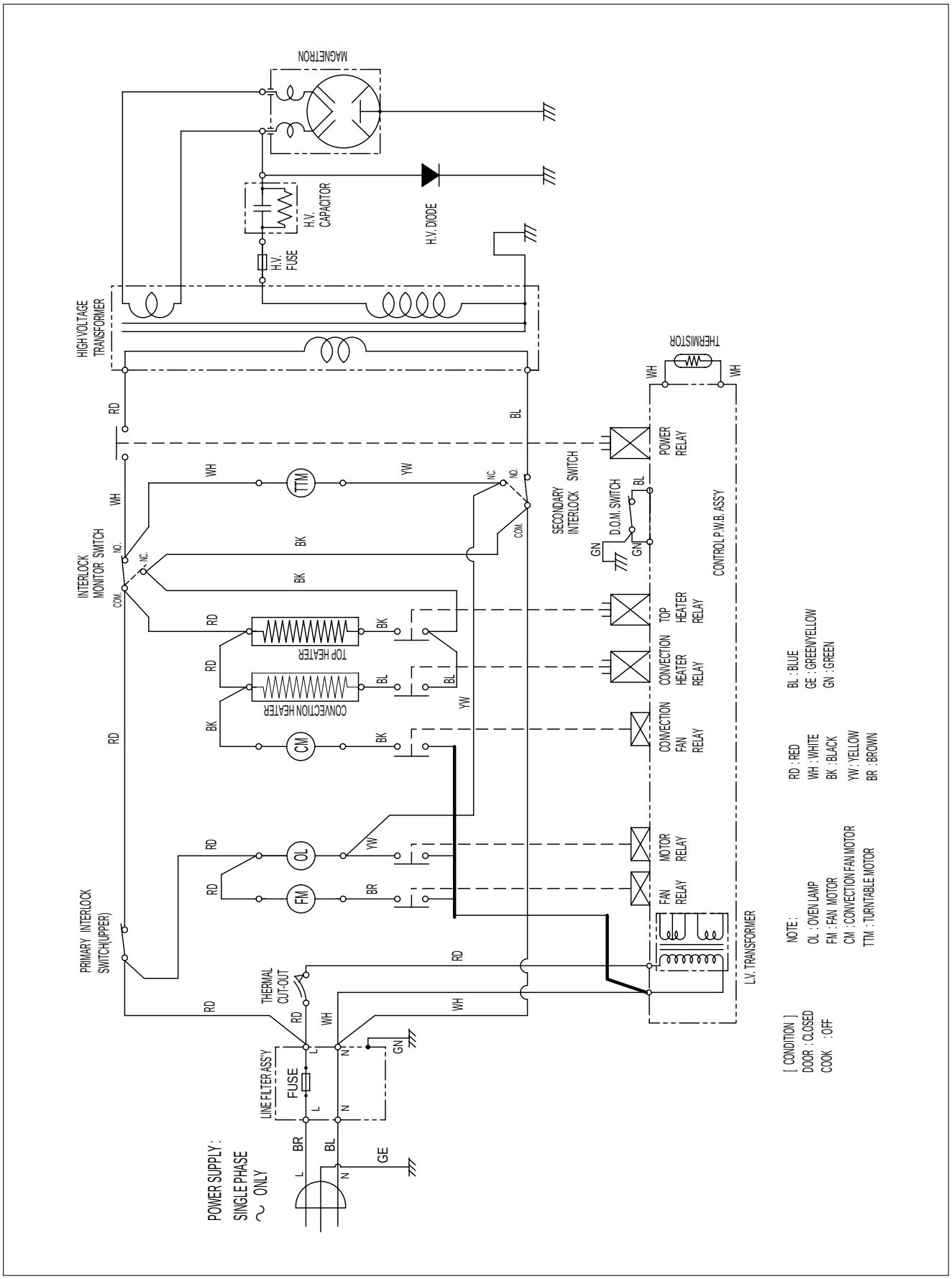
If the fuse in the primary and monitor switch circuit is blown when the door is opened, check the primary and monitor switch before replacing the blown fuse. In case the fuse is blown by an improper switch operation, replace the defective switch and fuse at the same time. Replace just the fuse if the switches operate normally.

4. COMPONENT ACTION

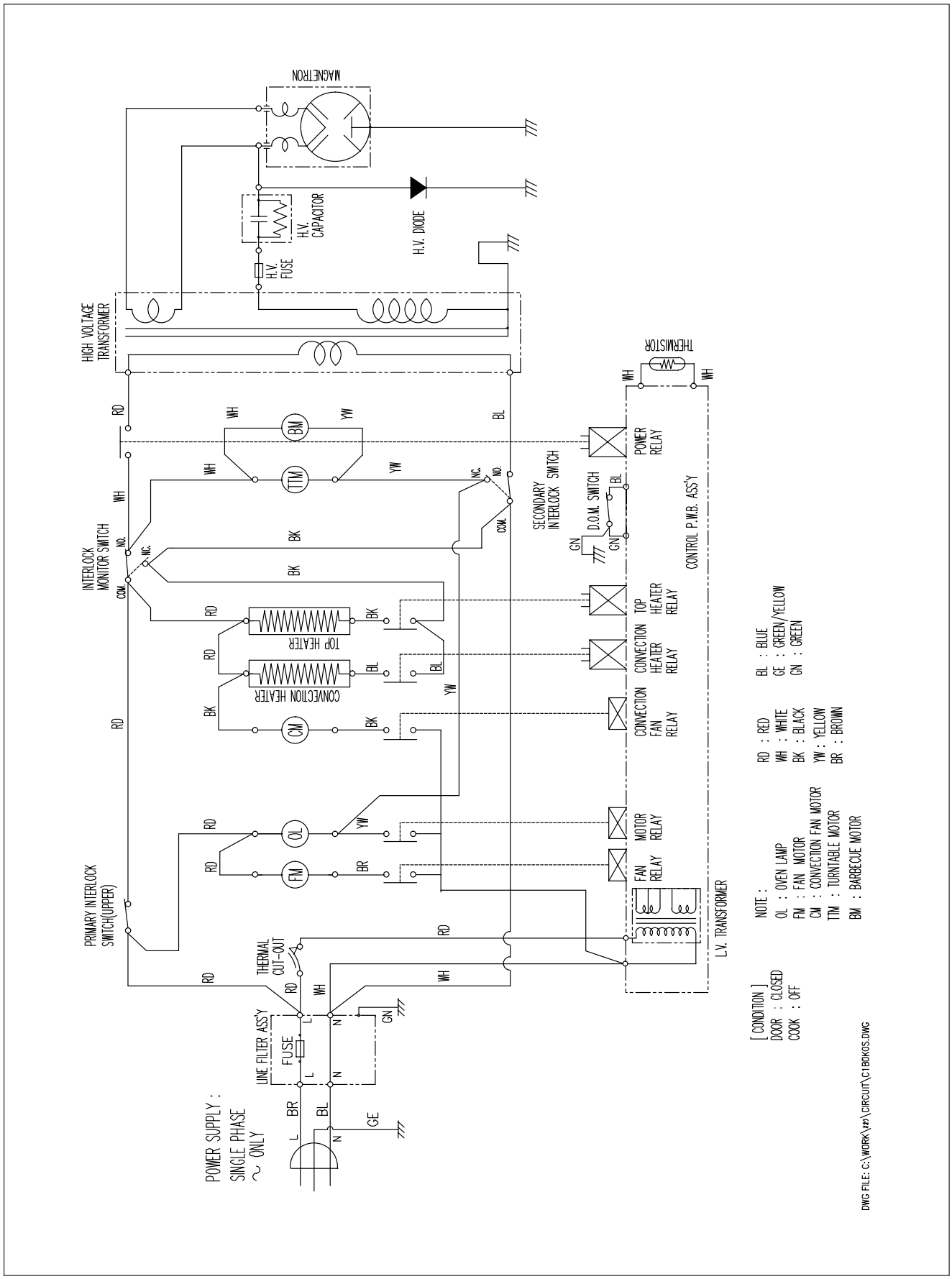
COOKING MODE		MAGNE-TRON	UPPER ELEMENT	LOWER ELEMENT	REAR ELEMENT	CONVEC-TION FAN
MANUAL MODE	M/W	●				
	GRILL-1		●			
	GRILL-2			●		
	GRILL-3		●	●		
	COMBI-1	●	●	●	●	●
	COMBI-2	●	●	●	●	●
	COMBI-3		●	●	●	●
	COMBI-4	●	●			
	COMBI-5	●	●	●		
	CONVECTION100~130				●	●
	CONVECTION140~150			●	●	●
	CONVECTION160~250		●	●	●	●
ONE TOUCH	CAKE/BREAD	●	●	●	●	●
	CRUSTY	●	●	●	●	●
AUTO MODE	ROAST BEEF	●	●	●	●	●
	ROAST CHICKEN	●	●	●	●	●
	ROAST PORK	●	●	●	●	●
	BAKED FISH	●	●	●	●	●
	BAKED POTATO	●	●	●	●	●
	BAKED POTATO	●	●	●	●	●
	ROAST POTATO	●	●	●	●	●
	FRESH VEGETABLES	●				
	FROZEN VEGETABLES	●				
	CASSEROLE	●				

10. WIRING DIAGRAM

- KOC-924T0S/924T5S



- KOC-924T0S01/924T5S01



11. EXPLODED VIEW AND PARTS LIST

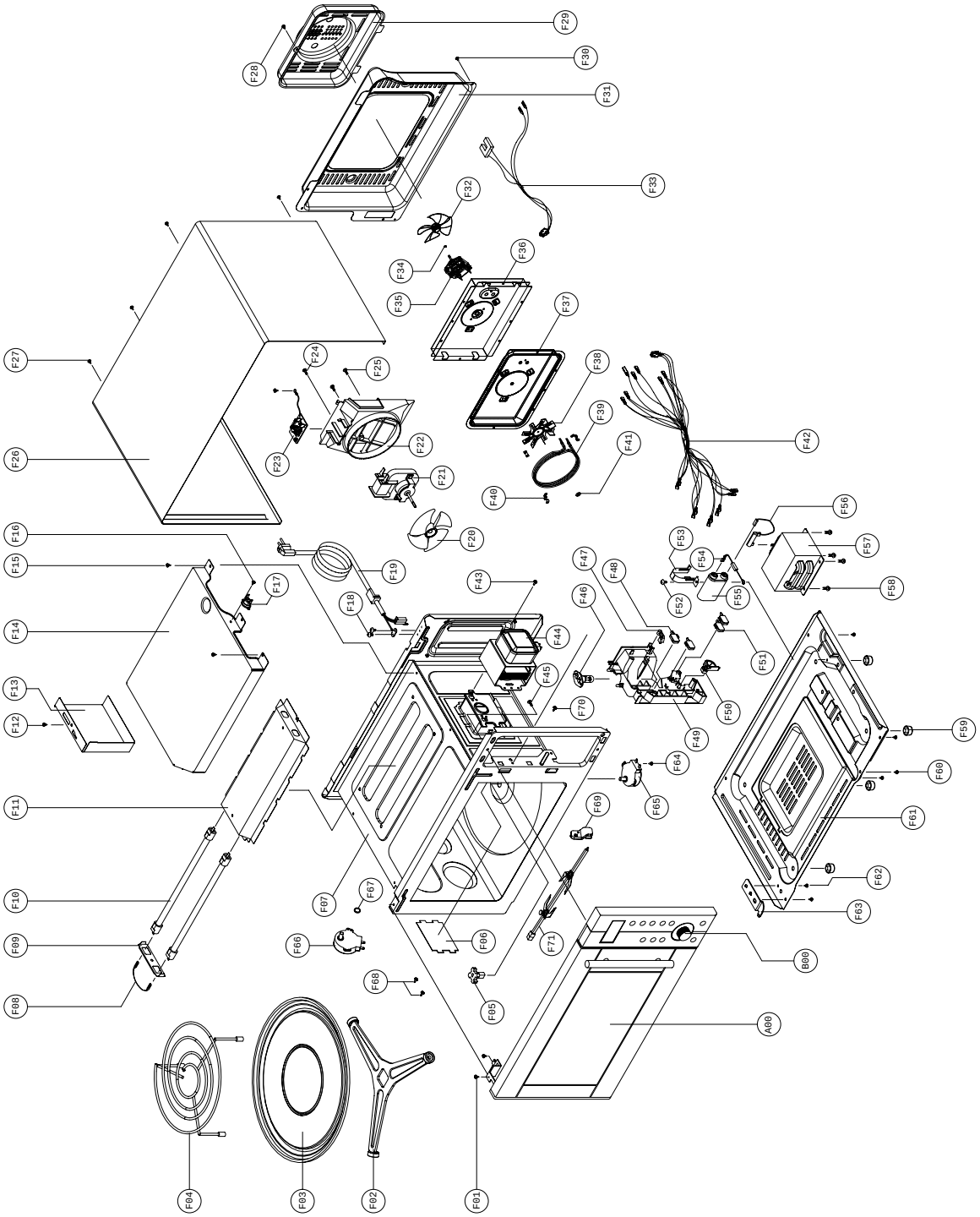
1. DOOR ASSEMBLY

Refer to 6. Disassembly and assembly.

2. CONTROL PANEL ASSEMBLY

Refer to 6. Disassembly and assembly.

3. TOTAL ASSEMBLY



NO	PART CODE	PART NAME	DESCRIPTION	Q'TY
A00	3511714520	DOOR AS	KOC-924T0S	1
B00	3516725640	CONTROL PANEL AS	KOC-924T0S	1
	3516725650		KOC-924T5S	
F01	3516003700	SPECIAL SCREW	TT3 HEX 4*8 FLG MFZN	2
F02	3512521000	GUIDE ROLLER AS	KOC-1BOKOS	1
F03	3517205200	TRAY METAL	SPP T0.6	1
F04	3517202611	TRAY RACK AS	KOC-961C0S 117MM	1
F05	3517401900	COUPLER	PTFE	1
F06	3511408300	COVER WAVE GUIDE	MICA T0.35	1
F07	3516112320	CAVITY AS	KOC-924T0S	1
F08	3512767000	HARNESS HEATER	KOC-1B0KOS	1
F09	3510607700	BRACKET HEATER*T	SA1D-80 T0.5	1
F10	3512803800	HEATER MIRACLON	115V 550W 270MM	2
F11	3511407600	COVER HEATER*T	STS430 T0.5	1
F12	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1
F13	3512520500	GUIDE AIR OUTLET	SA1D-80 T0.5	1
F14	3513303000	INSULATOR HEATER*T	SECC T0.5	1
F15	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	2
F16	7121400611	SCREW TAPPING	T2S PAN 4*6 MFZN	1
F17	3518906310	THERMOSTAT	OFF:100 ON:60 V #187	1
F18	7112401011	SCREW TAPPING	T1 TRS 4*10 SE MFZN	2
F19	35113A5QJ5(KOC-924T0S)	CORD POWER AS	3*1.5 80*80 120-RTML 1.0M(KOC-924T0S)	1
	35113A5QM5(KOC-924T5S)		3*1.0 80*80 120-RTML 1.4M(KOC-924T5S)	
F20	3511800100	FAN	PP GF20	1
F21	3963513010	MOTOR SHADED POLE	230V 25W MW15CA-B01	1
F22	3512515300	GUIDE WIND	PP	1
F23	3518605001(KOC-924T0S)	NOISE-FILTER	DWLF-M05(KOC-924T0S)	1
	3518605500(KOC-924T5S)		DWLF-M07(KOC-924T5S)	
F24	7S312X40A1	SCREW SPECIAL	T1 TRS 4*10 SE MFZN	1
F25	7121403011	SCREW TAPPING	T2S PAN 4*30 MFZN	2
F26	3510803500	CABINET	SECC T0.6	1
F27	7S312X40A1	SCREW SPECIAL	T1 TRS 4*10 SE MFZN	4
F28	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1
F29	3511407300	COVER MOTOR*B	SA1D-80 T0.5	1
F30	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1
F31	3511407900	COVER*B	SA1A-80 T0.5	1
F32	3511800800	FAN	PP GF20	1
F33	3512767600	HARNESS CONVECTION	KOC-924T0S	1
F34	7402704600	RING C	CR-5 SK5	1
F35	3963514300	MOTOR SHADED POLE	230V 50HZ MW10CA-T02	1
F36	3513303400	INSULATOR HEATER*B	SBHG-1 T0.5	1

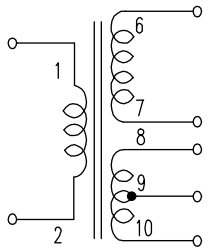
NO	PART CODE	PART NAME	DESCRIPTION	Q'TY
F37	3511409800	COVER HEATER*B	SA1D-80 T0.5	1
F38	3511800700	FAN CONVECTION	SA1D-80 T0.5	1
F39	3512801800	HEATER	230V 1400W 1R18344	1
F40	3513002300	HOLDER HEATER	SUS304 T0.5	3
F41	7400104011	WASHER PLAIN	PW-1-4 MFZN	1
F42	3512718320	HARNESS MAIN	KOC-924T0S	1
F43	3516004000	SPECIAL SCREW	T2 BOLT FLANGE 5*12 DACR	1
F44	3518002900	MAGNETRON	2M218J(F)P	1
F45	7122401211	SCREW TAPPING	T2S TRS 4*12 MFZN	1
F46	3513601600	LAMP	BL 240V 25W T25 C7A H187	1
F47	3513700800	LEVER LOCK	POM	1
F48	4415A17352	SW MICRO	VP-533A-OF SPNO #187 200	2
F49	3513816000	LOCK	PP	1
F50	3513702100	LEVER SW MICRO	POM, KOG-846T0S	1
F51	4415A66910	SW MICRO	VP-531-OF/SZM-V16-FA-61	2
F52	7S422X4081	SCREW SPECIAL	TT3 TRS 4*8 SE MFZN	1
F53	3513003200	HOLDER HV CAPACITOR	SECC T0.6	1
F54	3518400400	DIODE HV	HVR-1X-3AB 12KV #187	1
F55	3518302300	CAPACITOR HV	2100VAC 1.1OUE #187	1
F56	3518701400	FUSE HV	5KV 0.7A	1
F57	3518118910	TRANS HV	DW-R10S0-92T	1
F58	7147401011	SCREW TAPPING	T2 FLG HEX 4*10 MFZN	4
F59	3512101400	FOOT	DASE-310	4
F60	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	5
F61	3510313600	BASE	SBHG T0.8	1
F62	7272400811	SCREW TAPTITE	TT3 TRS 4*8 MFZN	1
F63	3515202800	STOPPER HINGE*U AS	KOR-121M0A	1
F64	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1
F65	3966510200	MOTOR SYNCRO	230V 25W GM-16-24FD24	1
F66	441BE15203	MOTOR SYNCRO	GM-20-24FDB2 (KOC-924T0S01/924T5S01)	1
F67	3512300301	GASKET	C2700W T1.0 (KOC-924T0S01/924T5S01)	1
F68	7113400814	SCREW TAPPING	T1 BIN 4X8 MFNI (KOC-924T0S01/924T5S01)	1
F69	3512521200	GUIDE ROTARY	TEFLON (KOC-924T0S01/924T5S01)	1
F70	7112401011	SCREW TAPPING	T1 TRS 4X10 MFZN (KOC-924T0S01/924T5S01)	1
F71	3517605700	UTENSIL BAR AS	KOC-910K0S01 (KOC-924T0S01/924T5S01)	1

12. PRINTED CIRCUIT BOARD

CIRCUIT CHECK PROCEDURE

1. Low voltage transformer check

The low voltage transformer is located on the P.C.B.
Measuring condition: Input voltage: 230V / Frequency: 50Hz

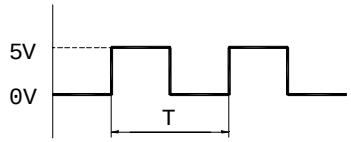
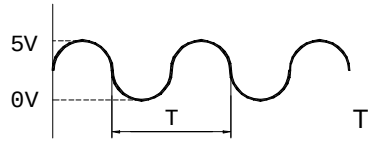


Terminal	Voltage(load)	Voltage(no load)
6-7	AC 17.0 V	AC 19.9 V
8-9	AC 1.3 V	AC 1.6 V
9-10	AC 1.3 V	AC 1.6 V

NOTE
1. Secondary side voltage of the low voltage transformer changes in proportion to fluctuation of power source voltage.
2. The allowable tolerance of the secondary voltage is within ± 5% of nominal voltage.

2. Voltage Check

- Key check point

NO	CHECK POINT	REMARK
1	IC1 PIN 20, 21	5VDC±5%
2	IC1 PIN 22	 T : 20 ms(50Hz)
3	IC1 PIN 8 OR 9	 T : 250 ns(4MHz)

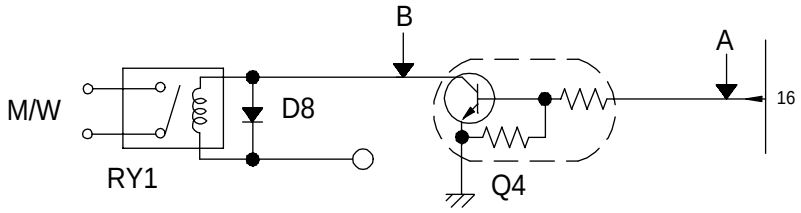
- Check method

NO	MEASURE POINT	WAVE FORM	REMEDY	REMARK
1	MP1	DC 5V±5%	Replace ZD4, EC1	NO LOAD
2	MP2	DC 24V±20%	Replace D18-21, EC5	NO LOAD

NOTE: Each measure point must be measured with GND points.

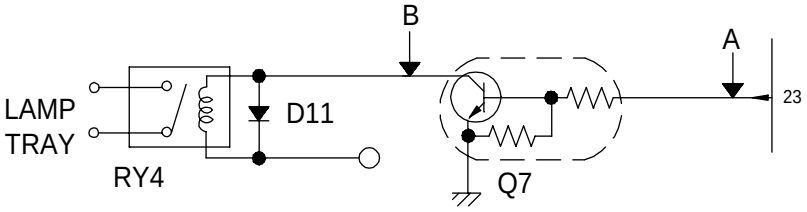
3. Case of no microwave oscillation

1) When touching M/W button, oven lamp turns on and Fan motor and turntable rotate, and cook indicator in display comes on.
*Cause: **RELAY 1** does not operate.



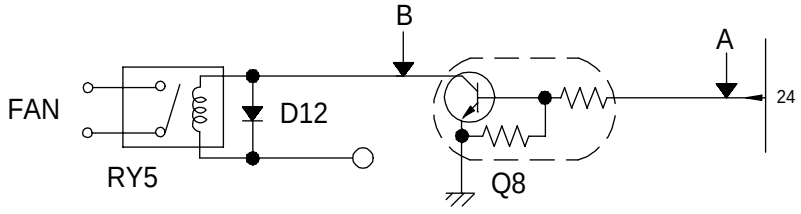
STATE	POINT A	POINT B
RELAY 1 ON	+5V DC	GND
RELAY 1 OFF	GND	+24V DC

2) When touching M/W button, oven lamp does not turn on and turntable motor does not rotate but cook indicator in display comes on.
*Cause: **RELAY 1** does not operate.



STATE	POINT A	POINT B
RELAY 4 ON	+5V DC	GND
RELAY 4 OFF	GND	+24V DC

3) When touching M/W button, oven lamp turn on and turns on and fan motor does not rotate but cook indicator in display comes on.
*Cause: **RELAY 5** does not operate.

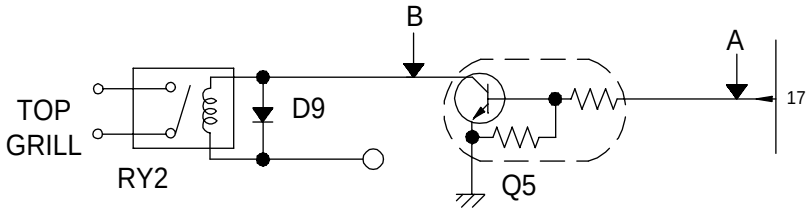


STATE	POINT A	POINT B
RELAY 5 ON	+5V DC	GND
RELAY 5 OFF	GND	+24V DC

4. Case of no heating of top grill

When touching GRILL or COMBI button, oven lamp turns on and fan motor and turntable rotate, and cook indicator in display comes on.

*Cause: **RELAY 2** does not operate.

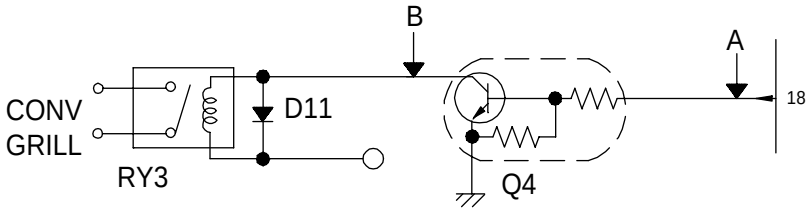


STATE	POINT A	POINT B
RELAY 2 ON	+5V DC	GND
RELAY 2 OFF	GND	+24V DC

5**. Case of no heating of convection grill**

When touching CONVECTION button, oven lamp turns on and Fan motor and turntable rotate and cook indicator in display comes on.

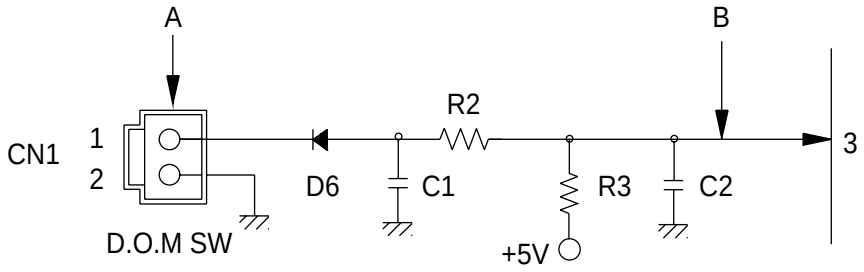
*Cause: **RELAY 3** does not operate.



STATE	POINT A	POINT B
RELAY 3 ON	+5V DC	GND
RELAY 3 OFF	GND	+24V DC

6. Case of no stopping of the count down timer

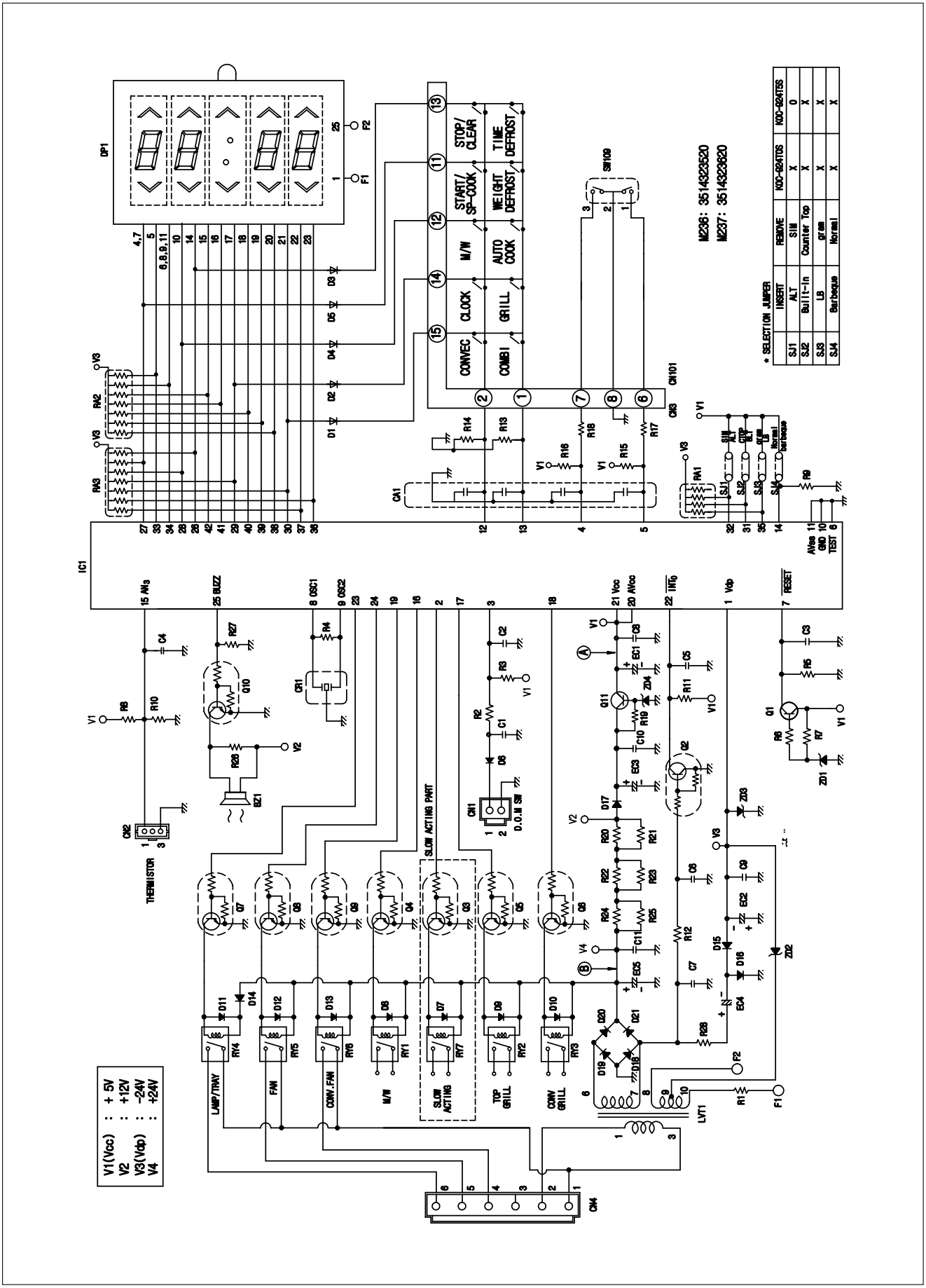
When the door is opened during operation, the count down timer does not stop.



POINT / STATE	A	B
DOOR OPEN	OPEN	+5V DC
DOOR CLOSED	CLOSE	GND

CHECK NO	METHOD	REMEDY
1	Check the stage(ON,OFF) of the door open monitor switch by resistance measurement.	Replace door open monitor swith.

13. P.C.B. CIRCUIT DIAGRAM



PCB ASS'Y PART LIST

NO	NAME	SYMBOL	SPECIFCATION	PART CODE	Q'TY
1	BUZZER	BZ1	BM-20K	3515600100	1
2	C ARRAY	CA1	5P(4) 102 M 50V	CN4XB-102M	1
3	C CERA	C1~11	104 50V Z AXIAL	CCZF1H104Z	11
4	C ELECTRO	EC1	50V RS 10uF	CEXE1H100A	1
5	C ELECTRO	EC2	50V RSS 100uF	CEXF1H101V	1
6	C ELECTRO	EC3,4	50V RSS 220uF	CEXF1H221V	2
7	C ELECTRO	EC5	35V RSS 1000uF	CEXF1V102V	1
8	CONNECTOR WAFER	CN1	35313-0210	30166M7020	1
9	CONNECTOR WAFER	CN2	35312-0310	30166M5030	1
10	CONNECTOR FILM	CN3	HLEM15S-1	4CW215SBD0	1
11	CONNECTOR WAFER	CN4	35328-0610	4CW3061MX0	1
12	DIODE	D1~6,8~14,17	1N4148	DZN4148---	14
13	DIODE	D15,16,18~21	1N4004A	DZN4004A--	6
14	DIODE ZENER	ZD1	UZ-3.3BSB	DZUZ3R3BSB	1
15	DIODE ZENER	ZD2	UZ-3.9BSB	DZUZ3R9BSB	1
16	DIODE ZENER	ZD3	UZ-24BSB	DZUZ24BSB-	1
17	DIODE ZENER	ZD4	UZ-5.6BSB	DZUZ5R6BSB	1
18	DISPLAY VFD	DP1	SVM-5MS06	DSVM5MS06-	1
19	HOLDER VFD	DPH1	PP	3513002000	1
20	PCB MAIN	M236	95x235	3514323520	1
21	R ARRAY	RA1	5P(4) 1/8 100K J	RA-85X104J	1
22	R CARBON FILM	R28	1/2W 27 5%	RD-2Z270JS	1
23	R CARBON FILM	R20~25	1/2W 200 5%	RD-2Z201JS	6
24	R CARBON FILM	R1	1/4W 6.8 5%	RD-4Z689J-	1
25	R CARBON FILM	R7	1/6W 200 5%	RD-AZ201J-	1
26	R CARBON FILM	R2,6,17~19,26	1/6W 1K 5%	RD-AZ102J-	6
27	R CARBON FILM	R3,5,11	1/6W 10K 5%	RD-AZ103J-	3
28	R CARBON FILM	R12	1/6W 47K 5%	RD-AZ473J-	1
29	R CARBON FILM	R9,13~16,27	1/6W 100K 5%	RD-AZ104J-	6
30	R CARBON FILM	R4	1/6W 1M 5%	RD-AZ105J-	1
31	R METAL FILM	R8	1/4W 10K 1%	RN-4Z1002F	1
32	R METAL FILM	R10	1/4W 120K 1%	RN-4Z1203F	1
33	RESONATOR CERA	CR1	CRT4.00MS	5P4R00MTS-	1
34	IC MICOM	IC1	HD404318S	147S924T00	1
35	TRANSISTOR	Q1	KTA-1266Y	TZTA1266Y-	1
36	TRANSISTOR	Q2,4~10	KRC-106M	TZRC106M--	8
37	TRANSISTOR	Q11	KTC-3198GR	TZTC3198GR	1
38	TRANS POWER	LVT1	DMR-210FS	5EPV041410	1
39	SW RELAY	RY1~3	G5G-1A DT DC24V	5SC0101124	3
40	SW RELAY	RY4~6	CS11-24SH 1C 1P	5SC0101129	3
41	WIRE COPPER	J2,3,7,8,10~12,16,17,19,20,22	1/0.52 TIN COATING	85801052GY	12
42	WIRE COPPER	J5,6,13~15,18,21,23	1/0.52 TIN COATING	85801052GY	8
43	WIRE COPPER	J4,9	1/0.52 TIN COATING	85801052GY	2
44	WIRE FLAT	WF1	15/90 WH C	WSJ-159007	1
45	PCB SUB	M237	90x200	3514323620	1
46	CONNECTOR FILM	CN101	HLEM15R-1	4CW215RBD0	1
47	SW TACT	SW101~108,110,111	KPT-1115AM	5S50101Z93	10
48	SW ROTARY	SW109	SDB161PVB17F	5S10109002	1
49	WIRE COPPER	J101~103	1/0.52 TIN COATING	85801052GY	3
50	WIRE COPPER	SJ1	924T5S only	85801052GY	1
	WIRE COPPER	SJ4	924T0S01 only	85801052GY	1
	WIRE COPPER	SJ1, 4	924T5S01 only	85801052GY	2
	WIRE COPPER	-	924T0S only	85801052GY	0

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